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**CRM:** A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at [www.eraqc.com/AboutERA/Accreditations](http://www.eraqc.com/AboutERA/Accreditations).

**PT:** A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

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**QR:** Similar to a Proficiency Test, a Quik Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. Quik Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

**RM:** A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

All ERA Soil PTs open quarterly (**Q**) or biannually (**B**), unless otherwise noted. Quarterly months are January, April, July, and October.

## Metals

NEW  
ANALYTE

## Metals in Soil

| CRM<br>Cat. #540 | PT<br>Cat. #620 | Q | QR<br>Cat. #540QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g soil sample in a screw-cap bottle for all ICP and AA, RCRA and Superfund Methods including EPA Digestion Methods 3050 Hot Plate and 3051 Microwave, or other applicable methods. Includes all metals shown below.

|                 |                   |
|-----------------|-------------------|
| Aluminum.....   | 2500-25,000 mg/kg |
| Antimony.....   | 80-300 mg/kg      |
| Arsenic.....    | 40-400 mg/kg      |
| Barium.....     | 100-1000 mg/kg    |
| Beryllium.....  | 40-400 mg/kg      |
| Boron.....      | 80-800 mg/kg      |
| Cadmium.....    | 40-400 mg/kg      |
| Calcium.....    | 1500-25,000 mg/kg |
| Chromium.....   | 40-400 mg/kg      |
| Cobalt.....     | 40-400 mg/kg      |
| Copper.....     | 40-400 mg/kg      |
| Iron.....       | 5000-50,000 mg/kg |
| Lead.....       | 40-400 mg/kg      |
| Lithium.....    | 50-250 mg/kg      |
| Magnesium.....  | 1200-25,000 mg/kg |
| Manganese.....  | 100-2000 mg/kg    |
| Mercury.....    | 1-35 mg/kg        |
| Molybdenum..... | 30-300 mg/kg      |
| Nickel.....     | 40-500 mg/kg      |
| Potassium.....  | 1400-25,000 mg/kg |
| Selenium.....   | 40-400 mg/kg      |
| Silver.....     | 20-100 mg/kg      |
| Sodium.....     | 150-15,000 mg/kg  |
| Strontium.....  | 40-400 mg/kg      |
| Thallium.....   | 40-400 mg/kg      |
| Tin.....        | 50-250 mg/kg      |
| Titanium.....   | 10-2000 mg/kg     |
| Uranium.....    | 1-250 mg/kg       |
| Vanadium.....   | 40-400 mg/kg      |
| Zinc.....       | 100-1000 mg/kg    |

## Hexavalent Chromium in Soil

| CRM<br>Cat. #921 | PT<br>Cat. #876 | Q | QR<br>Cat. #921QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g standard in a screw-cap bottle for use with all promulgated hexavalent chromium methods.

Hexavalent chromium.....40-300 mg/kg



## TCLP Metals in Soil

| CRM<br>Cat. #544 | PT<br>Cat. #629 | Q | QR<br>Cat. #544QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 105 g soil standard in a screw-cap bottle designed specifically to meet all state requirements for TCLP extraction and analysis for the metals listed below. Sample is designed to be extracted with fluid #1.

|           |          |          |
|-----------|----------|----------|
| Antimony  | Cadmium  | Nickel   |
| Arsenic   | Chromium | Selenium |
| Barium    | Lead     | Silver   |
| Beryllium | Mercury  | Zinc     |

## Metals in Sewage Sludge

| CRM<br>Cat. #160 | PT<br>Cat. #619 | Q | QR<br>Cat. #160QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g sludge standard in a screw-cap bottle to be analyzed for the metals listed below.

|                 |                   |
|-----------------|-------------------|
| Aluminum.....   | 1000-50,000 mg/kg |
| Antimony.....   | 80-300 mg/kg      |
| Arsenic.....    | 50-400 mg/kg      |
| Barium.....     | 250-2000 mg/kg    |
| Beryllium.....  | 30-200 mg/kg      |
| Cadmium.....    | 40-300 mg/kg      |
| Calcium.....    | 5000-70,000 mg/kg |
| Chromium.....   | 40-300 mg/kg      |
| Cobalt.....     | 5-50 mg/kg        |
| Copper.....     | 40-1000 mg/kg     |
| Iron.....       | 1000-50,000 mg/kg |
| Lead.....       | 50-250 mg/kg      |
| Magnesium.....  | 1200-25,000 mg/kg |
| Manganese.....  | 100-2000 mg/kg    |
| Mercury.....    | 1-50 mg/kg        |
| Molybdenum..... | 5-250 mg/kg       |
| Nickel.....     | 40-250 mg/kg      |
| Potassium.....  | 1400-25,000 mg/kg |
| Selenium.....   | 50-250 mg/kg      |
| Silver.....     | 50-250 mg/kg      |
| Sodium.....     | 150-15,000 mg/kg  |
| Strontium.....  | 200-2000 mg/kg    |
| Thallium.....   | 50-250 mg/kg      |
| Vanadium.....   | 5-250 mg/kg       |
| Zinc.....       | 70-1500 mg/kg     |

## Physical Parameters

## Corrosivity/pH in Soil

| CRM<br>Cat. #914 | PT<br>Cat. #875 | Q | QR<br>Cat. #914QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 100 g soil standard in a screw-cap bottle. Use to measure corrosivity.

Corrosivity/pH.....2-12 S.U.

## Ignitability/Flash Point

| CRM<br>Cat. #979 | PT<br>Cat. #874 | Q | QR<br>Cat. #979QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One standard packaged in three 30 mL bottles. Use to measure ignitability.

Ignitability/flashpoint.....100-200 °F

## Oil &amp; Grease in Soil

| CRM<br>Cat. #549 | PT<br>Cat. #867 | Q | QR<br>Cat. #549QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One screw-cap bottle containing 50 g of soil ready to analyze. Use with gravimetric method 9071B or infrared spectrometric analysis.

|                                                   |                |
|---------------------------------------------------|----------------|
| n-Hexane extractable material (O&G) (Gravimetric) | 300-3000 mg/kg |
| n-Hexane extractable material (O&G) (Infrared)    | 300-3000 mg/kg |

## Inorganics

## Anions in Soil

NEW ANALYTES

| CRM<br>Cat. #543 | PT<br>Cat. #873 | Q | QR<br>Cat. #543QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g soil standard in a screw-cap bottle designed for a DI water extraction procedure for all the anions listed below.

|                        |                |
|------------------------|----------------|
| Bromide                | 10-100 mg/kg   |
| Chloride               | 200-1000 mg/kg |
| Fluoride               | 25-500 mg/kg   |
| Nitrate as N           | 25-500 mg/kg   |
| Nitrite as N           | 0-500 mg/kg    |
| Nitrate + Nitrite as N | 0-2000 mg/kg   |
| Phosphate as P         | 25-500 mg/kg   |
| Sulfate                | 25-2000 mg/kg  |

## Cyanide in Soil

| CRM<br>Cat. #541 | PT<br>Cat. #621 | Q | QR<br>Cat. #541QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g soil standard in a screw-cap bottle for all distillation/colorimetric methods.

|                  |              |
|------------------|--------------|
| Total cyanide    | 20-200 mg/kg |
| Amenable cyanide | 0-100 mg/kg  |

## Nutrients in Soil

| CRM<br>Cat. #542 | PT<br>Cat. #869 | Q | QR<br>Cat. #542QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 40 g soil standard in a screw-cap bottle. Use to analyze for all the nutrients listed below.

|                              |                   |
|------------------------------|-------------------|
| Ammonia as N                 | 300-3000 mg/kg    |
| Total Kjeldahl nitrogen as N | 400-4000 mg/kg    |
| Total organic carbon (TOC)   | 1000-20,000 mg/kg |
| Total phosphorus as P        | 300-3000 mg/kg    |

## Nutrients in Sludge

| CRM<br>Cat. #545 |
|------------------|
|------------------|

One 40 g sludge standard in a screw-cap bottle is ready for analysis.

|                              |               |
|------------------------------|---------------|
| Ammonia as N                 | 0.1-5% (w/w)  |
| Total Kjeldahl nitrogen as N | 2-10% (w/w)   |
| Total organic carbon (TOC)   | 5-50% (w/w)   |
| Total phosphorus as P        | 0.5-10% (w/w) |

## Volatiles in Soil

| CRM<br>Cat. #721 | PT<br>Cat. #623 | Q | QR<br>Cat. #721QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 2 mL flame-sealed ampule in methanol requires spiking onto the provided ten grams of solid matrix before analysis. Use with EPA Methods 8021, 8260, or other applicable methods. Includes a subset of the analytes listed below at 20-200 µg/kg (40-400 µg/kg for total xylenes, 80-1000 for selected ketones, and 100-1000 µg/kg for acetonitrile).

|                                    |                                |                           |
|------------------------------------|--------------------------------|---------------------------|
| Acetone                            | 1,3-Dichlorobenzene            | 1,1,2,2-Tetrachloroethane |
| Acetonitrile                       | 1,4-Dichlorobenzene            | Tetrachloroethene         |
| Acrolein                           | Dichlorodifluoromethane        | Toluene                   |
| Benzene                            | 1,1-Dichloroethane             | 1,2,3-Trichlorobenzene    |
| Bromobenzene                       | 1,2-Dichloroethane             | 1,2,4-Trichlorobenzene    |
| Bromochloromethane                 | 1,1-Dichloroethylene           | 1,1,1-Trichloroethane     |
| Bromodichloromethane               | cis-1,2-Dichloroethylene       | 1,1,2-Trichloroethane     |
| Bromoform                          | trans-1,2-Dichloroethylene     | Trichloroethene           |
| Bromomethane                       | 1,2-Dichloropropane            | Trichlorofluoromethane    |
| 2-Butanone (MEK)                   | 1,3-Dichloropropane            | 1,2,3-Trichloropropane    |
| n-Butylbenzene                     | 2,2-Dichloropropane            | 1,2,4-Trimethylbenzene    |
| sec-Butylbenzene                   | 1,1-Dichloropropene            | 1,3,5-Trimethylbenzene    |
| tert-Butylbenzene                  | cis-1,3-Dichloropropylene      | Vinyl acetate             |
| Carbon disulfide                   | trans-1,3-Dichloropropylene    | Vinyl chloride            |
| Carbon tetrachloride               | Ethylbenzene                   | m&p-Xylene                |
| Chlorobenzene                      | Hexachlorobutadiene            | o-Xylene                  |
| Chlorodibromomethane               | Hexachloroethane               | Xylenes, total            |
| Chloroethane                       | 2-Hexanone                     |                           |
| 2-Chloroethyl vinyl ether          | Isopropylbenzene               |                           |
| Chloroform                         | p-Isopropyltoluene             |                           |
| Chloromethane                      | Methyl tert-butyl ether (MTBE) |                           |
| 2-Chlorotoluene                    | 4-Methyl-2-pentanone (MIBK)    |                           |
| 4-Chlorotoluene                    | Methylene chloride             |                           |
| 1,2-Dibromo-3-chloropropane (DBCP) | Naphthalene                    |                           |
| 1,2-Dibromoethane (EDB)            | Nitrobenzene                   |                           |
| Dibromomethane                     | n-Propylbenzene                |                           |
| 1,2-Dichlorobenzene                | Styrene                        |                           |
|                                    | 1,1,1,2-Tetrachloroethane      |                           |

*This standard is not compliant with the NELAC concentration for hexachloroethane, hexachlorobutadiene, and nitrobenzene. If a NELAC compliant sample is required for these analytes, use Ready-to-Use VOAs in Soil, or Base/Neutrals and Acids in Soil.*

## 1,4-Dioxane in Soil

NEW PRODUCT

| CRM<br>Cat. #538 | PT<br>Cat. #461 | B | QR<br>Cat. #538QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One 2 mL flame-sealed ampule requires spiking onto the provided ten grams of solid matrix before analysis. Use with modified versions of EPA method 8260, 1624 or other applicable methods.

|             |              |
|-------------|--------------|
| 1,4-Dioxane | 20-200 ug/kg |
|-------------|--------------|

## Gasoline Range Organics (GRO) in Soil

| CRM<br>Cat. #763 | PT<br>Cat. #630 | Q | QR<br>Cat. #763QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100-2000 mg/kg. Use with purge and trap and modified EPA 8015 GC/FID Methods, or other applicable methods. Also use to test for BTEX in gasoline.

*Note: This standard is not compliant with the NELAC concentration ranges for the BTEX analytes. If a NELAC-compliant sample for these analytes is required, use Volatiles in Soil, Cat. #623 or BTEX & MTBE Soil, Cat. #633.*

All ERA Soil PTs open quarterly (Q) or biannually (B), unless otherwise noted. Quarterly months are January, April, July, and October.

# Volatiles (continued)

## BTEX & MTBE in Soil

| CRM<br>Cat. #761 | PT<br>Cat. #633 | QR<br>Cat. #761QR |
|------------------|-----------------|-------------------|
|------------------|-----------------|-------------------|

One 2 mL flame-sealed ampule requires spiking onto the ten grams of provided certified clean soil. Includes the analytes below at 20–200 µg/kg (40–400 µg/kg for total xylenes). Use with EPA Method 8021, or other applicable methods.

|              |                                |                |
|--------------|--------------------------------|----------------|
| Benzene      | Methyl tert-butyl ether (MTBE) | Xylenes, total |
| Ethylbenzene | Toluene                        | m&p Xylene     |
|              |                                | o-Xylene       |

## Ready-to-Use VOAs in Soil

| CRM<br>Cat. #924 | PT<br>Cat. #870 | QR<br>Cat. #924QR |
|------------------|-----------------|-------------------|
|------------------|-----------------|-------------------|

One 20 mL flame-sealed ampule containing 10 g of soil and 10 mL of methanol is ready to analyze. Use with EPA Methods 8021, 8260, or other applicable methods. Includes a subset of the analytes listed below at 1000–20,000 µg/kg.

|                                    |                                |                           |
|------------------------------------|--------------------------------|---------------------------|
| Acetone                            | 1,2-Dibromoethane (EDB)        | Methylene chloride        |
| Acetonitrile                       | Dibromomethane                 | Naphthalene               |
| Acrolein                           | 1,2-Dichlorobenzene            | Nitrobenzene              |
| Benzene                            | 1,3-Dichlorobenzene            | n-Propylbenzene           |
| Bromobenzene                       | 1,4-Dichlorobenzene            | Styrene                   |
| Bromochloromethane                 | Dichlorodifluoromethane        | 1,1,1,2-Tetrachloroethane |
| Bromodichloromethane               | 1,1-Dichloroethane             | 1,1,2,2-Tetrachloroethane |
| Bromoform                          | 1,2-Dichloroethane             | Tetrachloroethene         |
| Bromomethane                       | 1,1-Dichloroethene             | Toluene                   |
| 2-Butanone (MEK)                   | cis-1,2-Dichloroethylene       | 1,2,3-Trichlorobenzene    |
| n-Butylbenzene                     | trans-1,2-Dichloroethylene     | 1,2,4-Trichlorobenzene    |
| sec-Butylbenzene                   | 1,2-Dichloropropane            | 1,1,1-Trichloroethane     |
| tert-Butylbenzene                  | 1,3-Dichloropropane            | 1,1,2-Trichloroethane     |
| Carbon disulfide                   | 2,2-Dichloropropane            | Trichloroethene           |
| Carbon tetrachloride               | 1,1-Dichloropropene            | Trichlorofluoromethane    |
| Chlorobenzene                      | cis-1,3-Dichloropropylene      | 1,2,3-Trichlorobenzene    |
| Chlorodibromomethane               | trans-1,3-Dichloropropylene    | 1,2,4-Trimethylbenzene    |
| Chloroethane                       | Ethylbenzene                   | 1,3,5-Trimethylbenzene    |
| 2-Chloroethyl vinyl ether          | Hexachlorobutadiene            | Vinyl acetate             |
| Chloroform                         | Hexachloroethane               | Vinyl chloride            |
| Chloromethane                      | 2-Hexanone                     | m&p-Xylene                |
| 2-Chlorotoluene                    | Isopropylbenzene               | o-Xylene                  |
| 4-Chlorotoluene                    | p-Isopropyltoluene             | Xylenes, total            |
| 1,2-Dibromo-3-chloropropane (DBCP) | Methyl tert-butyl ether (MTBE) |                           |
|                                    | 4-Methyl-2-pentanone (MIBK)    |                           |



# Total Petroleum Hydrocarbons

## Total Petroleum Hydrocarbons (TPH) in Soil #1

| CRM<br>Cat. #570 | PT<br>Cat. #632 | QR<br>Cat. #572QR |
|------------------|-----------------|-------------------|
|------------------|-----------------|-------------------|

One screw-top bottle with 50 g of soil to be analyzed for TPH. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

|                                                    |                |
|----------------------------------------------------|----------------|
| Non-polar extractable material (TPH) (Gravimetric) | 300–3000 mg/kg |
| Non-polar extractable material (TPH) (IR)          | 300–3000 mg/kg |

## Total Petroleum Hydrocarbons (TPH) in Soil #2

| CRM<br>Cat. #571 | PT<br>Cat. #632 | QR<br>Cat. #572QR |
|------------------|-----------------|-------------------|
|------------------|-----------------|-------------------|

One screw-top bottle with 50 g of soil to be analyzed for TPH in the presence of interfering fatty acids. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

|                                                    |                |
|----------------------------------------------------|----------------|
| Non-polar extractable material (TPH) (Gravimetric) | 300–3000 mg/kg |
| Non-polar extractable material (TPH) (IR)          | 300–3000 mg/kg |

# TCLP

## TCLP Volatiles

| CRM<br>Cat. #730 | QR<br>Cat. #730QR |
|------------------|-------------------|
|------------------|-------------------|

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.05–2.0 mg/L.

|                      |                      |                     |
|----------------------|----------------------|---------------------|
| Benzene              | Chloroform           | Tetrachloroethylene |
| 2-Butanone (MEK)     | 1,4-Dichlorobenzene  | Trichloroethylene   |
| Carbon tetrachloride | 1,2-Dichloroethane   | Vinyl chloride      |
| Chlorobenzene        | 1,1-Dichloroethylene |                     |

## TCLP Semivolatiles

| CRM<br>Cat. #737 | QR<br>Cat. #737QR |
|------------------|-------------------|
|------------------|-------------------|

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.1–2.0 mg/L after dilution. All unspiked analytes are certified at <0.5 mg/L.

|                     |                    |                       |
|---------------------|--------------------|-----------------------|
| 1,4-Dichlorobenzene | Hexachloroethane   | Pentachlorophenol     |
| 2,4-Dinitrotoluene  | 2-Methylphenol     | Pyridine              |
| Hexachlorobenzene   | 3 & 4-Methylphenol | 2,4,5-Trichlorophenol |
| Hexachlorobutadiene | Nitrobenzene       | 2,4,6-Trichlorophenol |

## TCLP Organochlorine Pesticides

| CRM<br>Cat. #732 | QR<br>Cat. #732QR |
|------------------|-------------------|
|------------------|-------------------|

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.01–0.2 mg/L after dilution. All unspiked analytes are certified at <0.1 mg/L.

|            |                     |              |
|------------|---------------------|--------------|
| Endrin     | Heptachlor epoxide  | Methoxychlor |
| Heptachlor | gamma-BHC (Lindane) |              |

## Nitroaromatics &amp; Nitramines in Soil

| CRM<br>Cat. #920 | PT<br>Cat. #871 | Q | QR<br>Cat. #920QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

Two flame-sealed ampules each containing 30 g of soil are ready to analyze. Use for EPA Methods 8330, 8091, or other applicable methods. Includes a subset of the analytes listed below at 1500–15,000 µg/kg.

|                            |                |                       |
|----------------------------|----------------|-----------------------|
| 4-Amino-2,6-dinitrotoluene | HMX            | RDX                   |
| 2-Amino-4,6-dinitrotoluene | Nitrobenzene   | Tetryl                |
| 1,3-Dinitrobenzene         | 2-Nitrotoluene | 1,3,5-Trinitrobenzene |
| 2,4-Dinitrotoluene         | 3-Nitrotoluene | 2,4,6-Trinitrotoluene |
| 2,6-Dinitrotoluene         | 4-Nitrotoluene |                       |

Per- & Polyfluoroalkyl  
Substances (PFAS) in SoilNEW  
ANALYTES

| CRM<br>Cat. #604 | PT<br>Cat. #462 | Q | QR<br>Cat. #604QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One flame-sealed ampule containing 10 g of soil. The standard is certified for all analytes listed below. Each lot will be spiked with 6–12 of the analytes specified in the range of 20–100 µg/kg (40–100 µg/kg for HFPO-DA). Design is suitable for methods analyzing these components with LC-MS/MS techniques.

|                                                                        |              |
|------------------------------------------------------------------------|--------------|
| 11-chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)..... | 20–100 µg/kg |
| 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS).....   | 20–100 µg/kg |
| 4,8-dioxa-3H-perfluorononanoic acid (DONA).....                        | 20–100 µg/kg |
| N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA).....          | 20–100 µg/kg |
| 1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS).....             | 20–100 µg/kg |
| 1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS).....             | 20–100 µg/kg |
| 1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS).....             | 20–100 µg/kg |
| Hexafluoropropylene oxide dimer acid (HFPO-DA).....                    | 40–100 µg/kg |
| N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA).....         | 20–100 µg/kg |
| Perfluorobutanesulfonic acid (PFBS).....                               | 20–100 µg/kg |
| Perfluorobutanoic acid (PFBA).....                                     | 20–100 µg/kg |
| Perfluorodecane sulfonic acid (PFDS).....                              | 20–100 µg/kg |
| Perfluorodecanoic acid (PFDA).....                                     | 20–100 µg/kg |
| Perfluorododecanoic acid (PFDoA).....                                  | 20–100 µg/kg |
| Perfluoroheptane sulfonic acid (PFHpS).....                            | 20–100 µg/kg |
| Perfluoroheptanoic acid (PFHpA).....                                   | 20–100 µg/kg |
| Perfluorohexanesulfonic acid (PFHxS).....                              | 20–100 µg/kg |
| Perfluorohexanoic acid (PFHxA).....                                    | 20–100 µg/kg |
| Perfluorononane sulfonic acid (PFNS).....                              | 20–100 µg/kg |
| Perfluorononanoic acid (PFNA).....                                     | 20–100 µg/kg |
| Perfluorooctane sulfonamide (PFOSAm).....                              | 20–100 µg/kg |
| Perfluorooctanesulfonic acid (PFOS).....                               | 20–100 µg/kg |
| Perfluorooctanoic acid (PFOA).....                                     | 20–100 µg/kg |
| Perfluoropentanoic acid (PFPeA).....                                   | 20–100 µg/kg |
| Perfluoropentane sulfonic acid (PFPeS).....                            | 20–100 µg/kg |
| Perfluorotetradecanoic acid (PFTDA).....                               | 20–100 µg/kg |
| Perfluorotridecanoic acid (PFTDA).....                                 | 20–100 µg/kg |
| Perfluoroundecanoic acid (PFUnDA).....                                 | 20–100 µg/kg |

## Low-Level PAHs in Soil

| CRM<br>Cat. #722 | PT<br>Cat. #625 | Q | QR<br>Cat. #722QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

Two flame-sealed ampules each containing 30 g are ready to analyze. Use for EPA HPLC Method 8310, 8270 SIM, or other applicable method. Includes a subset of the analytes listed below at 50–1000 µg/kg.

|                      |                       |                        |
|----------------------|-----------------------|------------------------|
| Acenaphthene         | Benzo(g,h,i)perylene  | Fluorene               |
| Acenaphthylene       | Benzo(a)pyrene        | Indeno(1,2,3-cd)pyrene |
| Anthracene           | Chrysene              | Naphthalene            |
| Benzo(a)anthracene   | Dibenz(a,h)anthracene | Phenanthrene           |
| Benzo(b)fluoranthene | Fluoranthene          | Pyrene                 |
| Benzo(k)fluoranthene |                       |                        |

## Diesel Range Organics (DRO) in Soil

| CRM<br>Cat. #765 | PT<br>Cat. #631 | Q | QR<br>Cat. #765QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

One flame-sealed ampule with 20 g of soil spiked with #2 Diesel Fuel in the range 300–3000 mg/kg. Use with modified EPA Method 8015, or other applicable GC/FID methods.

## Glycols in Soil

| CRM<br>Cat. #928 | PT<br>Cat. #463 | Q | QR<br>Cat. #928QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Methods 8015B, 8430, 1671, or other applicable method. Includes all the analytes listed below at 75–200 mg/kg.

|                   |                      |                    |
|-------------------|----------------------|--------------------|
| Diethylene glycol | Propylene glycol     | Triethylene glycol |
| Ethylene glycol   | Tetraethylene glycol |                    |

## Base/Neutrals &amp; Acids in Soil

NEW  
ANALYTES

| CRM<br>Cat. #727 | PT<br>Cat. #467 | Q | QR<br>Cat. #727QR |
|------------------|-----------------|---|-------------------|
|------------------|-----------------|---|-------------------|

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8270, or other applicable method. Includes a subset of the analytes listed below at 500–15,000 µg/kg.

|                            |                             |                              |
|----------------------------|-----------------------------|------------------------------|
| Acenaphthene               | 2-Chlorophenol              | 2-Methyl-4,6-dinitrophenol   |
| Acenaphthylene             | 4-Chlorophenyl phenyl ether | 2-Methylnaphthalene          |
| Acetophenone               | Chrysene                    | 2-Methylphenol               |
| 2-Amino-1-methylbenzene    | Dibenz(a,h)anthracene       | 3 & 4-Methylphenol           |
| (o-Toluidine)              | Dibenzofuran                | Naphthalene                  |
| Aniline                    | Di-n-butyl phthalate        | 2-Nitroaniline               |
| Anthracene                 | 1,2-Dichlorobenzene         | 3-Nitroaniline               |
| Atrazine                   | 1,3-Dichlorobenzene         | 4-Nitroaniline               |
| Benzaldehyde               | 1,4-Dichlorobenzene         | Nitrobenzene                 |
| Benzo(a)anthracene         | 3,3'-Dichlorobenzidine      | 2-Nitrophenol                |
| Benzo(b)fluoranthene       | 2,4-Dichlorophenol          | 4-Nitrophenol                |
| Benzo(k)fluoranthene       | 2,6-Dichlorophenol          | N-Nitrosodiethylamine        |
| Benzo(g,h,i)perylene       | Diethyl phthalate           | N-Nitrosodimethylamine       |
| Benzo(a)pyrene             | 2,4-Dimethylphenol          | N-Nitrosodiphenylamine       |
| Benzyl alcohol             | Dimethyl phthalate          | N-Nitroso-di-n-propylamine   |
| Biphenyl                   | 2,4-Dinitrophenol           | 2,2'-Oxybis(1-Chloropropane) |
| 4-Bromophenyl phenyl ether | 2,4-Dinitrotoluene          | Pentachlorobenzene           |
| Butyl benzyl phthalate     | Di-n-octyl phthalate        | Pentachlorophenol            |
| Caprolactam                | bis(2-Ethylhexyl)phthalate  | Phenanthrene                 |
| Carbazole                  | Fluoranthene                | Phenol                       |
| 4-Chloroaniline            | Fluorene                    | Pyrene                       |
| bis(2-Chloroethyl)ether    | Hexachlorobenzene           | Pyridine                     |
| bis(2-Chloroethoxy)methane | Hexachlorobutadiene         | 1,2,4,5-Tetrachlorobenzene   |
| 4-Chloro-3-methylphenol    | Hexachlorocyclopentadiene   | 2,3,4,6-Tetrachlorophenol    |
| 1-Chloronaphthalene        | Hexachloroethane            | 1,2,4-Trichlorobenzene       |
| 2-Chloronaphthalene        | Indeno(1,2,3-cd)pyrene      | 2,4,5-Trichlorophenol        |
|                            | Isophorone                  | 2,4,6-Trichlorophenol        |

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# Herbicides

## Chlorinated Acid Herbicides in Soil

**CRM**  
Cat. #723

**PT**  
Cat. #626



**QR**  
Cat. #723QR

Two flame-sealed ampules, each containing 30 g of soil are ready-to-use. Use with EPA Method 8151, or other applicable methods. Includes a subset of the analytes listed below at 100–1000 µg/kg (MCPA & MCPP 1000–10,000 µg/kg).

|                       |                          |                   |
|-----------------------|--------------------------|-------------------|
| Acifluorfen           | Dalapon                  | MCPP              |
| Bentazon              | Dicamba                  | 4-Nitrophenol     |
| Chloramben            | 3,5-Dichlorobenzoic acid | Pentachlorophenol |
| 2,4-D                 | Dichlorprop              | Picloram          |
| 2,4-DB                | Dinoseb                  | 2,4,5-T           |
| Dacthal diacid (DCPA) | MCPA                     | 2,4,5-TP (Silvex) |

*This standard is not compliant with the NELAC concentration for 4-Nitrophenol. If a NELAC compliant sample is required for this analyte, use Base/Neutrals and Acids in Soil.*

## PCBs

### PCBs in Oil

**CRM**  
Cat. #563

**PT**  
Cat. #817



**QR**  
Cat. #563QR

One 10 mL flame-sealed ampule is ready to analyze. Contains a different Aroclor, randomly selected from the list below at 10–50 mg/kg.

|              |              |              |
|--------------|--------------|--------------|
| Aroclor 1016 | Aroclor 1242 | Aroclor 1254 |
| Aroclor 1221 | Aroclor 1248 | Aroclor 1260 |
| Aroclor 1232 |              |              |

## PCBs in Oil Standards

PCBs in oil standards are sold individually in ready-to-use flame-sealed ampules with 5 g of oil. Use with EPA Methods 8082, EPA-600/4-81-045, Sept. 1982, or other applicable methods. LOW LEVEL standards contain an aroclor in the range 10–50 ppm. HIGH LEVEL standards contain an aroclor in the range 51–500 ppm.

| CRM Cat. # | Concentration | Aroclor | Range      |
|------------|---------------|---------|------------|
| 820        | Low           | 1242    | 10–50 ppm  |
| 821        | High          | 1242    | 51–500 ppm |
| 826        | Low           | 1248    | 10–50 ppm  |
| 827        | High          | 1248    | 51–500 ppm |
| 822        | Low           | 1254    | 10–50 ppm  |
| 823        | High          | 1254    | 51–500 ppm |
| 824        | Low           | 1260    | 10–50 ppm  |
| 825        | High          | 1260    | 51–500 ppm |

## PCBs in Soil

**CRM**  
Cat. #726

**PT**  
Cat. #624



**QR**  
Cat. #726QR

One screw-top bottle containing 50 grams of standard is ready to analyze. Use with EPA Method 8082, or other applicable methods. Each standard includes a different aroclor randomly selected from the list below at 1–50 mg/kg.

|              |              |              |
|--------------|--------------|--------------|
| Aroclor 1016 | Aroclor 1242 | Aroclor 1254 |
| Aroclor 1221 | Aroclor 1248 | Aroclor 1260 |
| Aroclor 1232 |              |              |

## PCBs in Soil Standards

PCBs in soil standards are sold individually in screw-top bottles containing 50 g of soil. Use with EPA Methods 8082, 4020, or other applicable methods. LOW LEVEL standards contain an aroclor in the range 0.5–50 ppm. HIGH LEVEL standards contain an aroclor in the range 51–500 ppm.

| CRM Cat. # | Concentration | Aroclor | Range      |
|------------|---------------|---------|------------|
| 490        | Low           | 1242    | 0.5–50 ppm |
| 491        | High          | 1242    | 51–500 ppm |
| 496        | Low           | 1248    | 0.5–50 ppm |
| 497        | High          | 1248    | 51–500 ppm |
| 492        | Low           | 1254    | 0.5–50 ppm |
| 493        | High          | 1254    | 51–500 ppm |
| 494        | Low           | 1260    | 0.5–50 ppm |
| 495        | High          | 1260    | 51–500 ppm |



Learn more about Soil products

**Heidi Senft**  
Quality Analyst



**Darwin Baxter**  
Application Engineer



# Pesticides

# Blank Soil

## Organochlorine Pesticides in Soil

|                         |                        |          |                          |
|-------------------------|------------------------|----------|--------------------------|
| <b>CRM</b><br>Cat. #728 | <b>PT</b><br>Cat. #468 | <b>Q</b> | <b>QR</b><br>Cat. #728QR |
|-------------------------|------------------------|----------|--------------------------|

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8081, or other applicable methods. Includes a subset of the analytes listed below at 50–500 µg/kg.

|                     |                    |                    |
|---------------------|--------------------|--------------------|
| Aldrin              | 4,4'-DDD           | Endrin             |
| alpha-BHC           | 4,4'-DDE           | Endrin aldehyde    |
| beta-BHC            | 4,4'-DDT           | Endrin ketone      |
| delta-BHC           | Dieldrin           | Heptachlor         |
| gamma-BHC (Lindane) | Endosulfan I       | Heptachlor epoxide |
| alpha-Chlordane     | Endosulfan II      | Methoxychlor       |
| gamma-Chlordane     | Endosulfan sulfate |                    |

## Chlordane in Soil

|                         |                        |          |                          |
|-------------------------|------------------------|----------|--------------------------|
| <b>CRM</b><br>Cat. #725 | <b>PT</b><br>Cat. #628 | <b>Q</b> | <b>QR</b><br>Cat. #725QR |
|-------------------------|------------------------|----------|--------------------------|

One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains technical chlordane at 100–1000 µg/kg.

## Toxaphene in Soil

|                         |                        |          |                          |
|-------------------------|------------------------|----------|--------------------------|
| <b>CRM</b><br>Cat. #724 | <b>PT</b><br>Cat. #627 | <b>Q</b> | <b>QR</b><br>Cat. #724QR |
|-------------------------|------------------------|----------|--------------------------|

One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains toxaphene at 200–2000 µg/kg.

## Carbamate Pesticides in Soil

|                         |                        |          |                          |
|-------------------------|------------------------|----------|--------------------------|
| <b>CRM</b><br>Cat. #926 | <b>PT</b><br>Cat. #879 | <b>Q</b> | <b>QR</b><br>Cat. #926QR |
|-------------------------|------------------------|----------|--------------------------|

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Methods 8318, 8321, or other applicable methods. Each standard contains a subset of the analytes listed below at 250–2500 µg/kg.

|                    |                     |           |
|--------------------|---------------------|-----------|
| Aldicarb           | Dioxacarb           | Oxamyl    |
| Aldicarb sulfone   | Diuron              | Promecarb |
| Aldicarb sulfoxide | 3-Hydroxycarbofuran | Propham   |
| Carbaryl           | Methiocarb          | Propoxur  |
| Carbofuran         | Methomyl            |           |

## Organophosphorus Pesticides (OPP) in Soil

|                         |                        |          |                          |
|-------------------------|------------------------|----------|--------------------------|
| <b>CRM</b><br>Cat. #925 | <b>PT</b><br>Cat. #878 | <b>Q</b> | <b>QR</b><br>Cat. #925QR |
|-------------------------|------------------------|----------|--------------------------|

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Method 8141, or other applicable methods. Each standard contains a subset of the analytes listed below at 100–1000 µg/kg.

|                           |                             |                                |
|---------------------------|-----------------------------|--------------------------------|
| Azinphos-methyl (Guthion) | Dichlorvos (DDVP)           | Phorate                        |
| Chlorpyrifos              | Disulfoton                  | Ronnel                         |
| Demeton                   | Ethyl parathion (Parathion) | Stirophos (Tetrachlorovinphos) |
| Demeton O & S             | Malathion                   | Terbufos                       |
| Diazinon                  | Methyl parathion            |                                |

## Metals & Cyanide Blank Sand

|                         |
|-------------------------|
| <b>CRM</b><br>Cat. #058 |
|-------------------------|

One 40 g sand sample in a screw-cap bottle. The concentrations of all EPA/NELAC including the priority pollutant metal and cyanide analytes are below the CLP Required Detection Limits (CRDLs) except iron, which is <250 mg/kg.

## Metals & Cyanide Blank Soil

|                         |
|-------------------------|
| <b>CRM</b><br>Cat. #057 |
|-------------------------|

One 40 g soil sample in a screw-cap bottle. The concentrations of all of the following analytes are below the CLP CRDLs: antimony, arsenic, beryllium, cadmium, cobalt, mercury, nickel, selenium, silver, sodium, thallium, and cyanide. The concentrations of the following analytes are below 10x the CLP CRDLs: barium, chromium, copper, lead, magnesium, potassium, and vanadium. The concentrations of manganese and zinc are <750 mg/kg. The concentration range for aluminum, calcium, and iron is 3000–25,000 mg/kg.



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