

# ENVIRONMENTAL EXPRESS

## Soil Extraction Cell: Frequently Asked Questions

### What method does this follow?

This procedure follows SW846 Method 3546 titled "Microwave Extraction".

### What type of heating device does the Soil Extraction Cell need?

The Soil Extraction Cell utilizes a HotBlock for the heating device rather than a microwave. The HotBlock provides the exact same temperature range and heating requirements that are required of Method 3546.

### Does the EPA allow for heating devices other than microwave technology for this method?

Yes. Section 1.1 of Method 3546 states, "Other systems and other types of vessels may be used, provided that the analyst demonstrates appropriate performance for the specific application." This, coupled with the Performance Based Measurement System approach that is available for SW846 methods, one is allowed to use systems other than microwave to produce the necessary heat and pressure necessary to obtain the desired target analyte sensitivity and recovery. HotBlock technology has been proven to do so.

### What compounds can be extracted using the Soil Extraction Cell System?

All organic compounds falling under SW846 Method 3546 can be extracted using this system including PAH/BNAs, PCBs, TPH, Pesticides, Herbicides, etc.

### What solvents are used for the extractions?

The Soil Extraction Cell method was validated using Methylene Chloride as the extraction solvent though other solvents may be used depending on the determinative method employed by the laboratory. Unlike microwave technology it is not necessary to add a polar solvent to pure hydrocarbon solvents which do not absorb microwave energy. All solvents will heat to the required temperature with HotBlock technology.

### How much solvent does the Soil Extraction Cell use?

It is recommended that approximately 30 mls of solvent be added to each sample during the extraction. An additional 5 – 10 mls is used during the rinsing and filtration steps.

### How much sample is required?

Anywhere from 10 – 30g of sample should be used. This will vary depending on detection limits and individual laboratory needs.

### What is the basic procedure?

1. Add 10-30g of sample to the Soil Extraction Cell.
2. Add surrogates, standards, and solvent as needed.
3. Place the inner lid into the Soil Extraction Cell and screw on the threaded cap.
4. Place the cells into the HotBlock and heat to a block temperature of 130°C.
5. Heat cells for 30 minutes at the 130°C temperature. Monitor the internal cell temperature using the Temperature Reference Cell.
6. Take cells out of HotBlock and allow to cool to room temperature.
7. Remove threaded cap and inner lid taking care to rinse inner lid and collect solvent in the cell.
8. Filter using a Buchner funnel or other filtration apparatus.
9. The sample is now ready for concentration, cleanup, and analysis.



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### How long does the extraction take?

The extraction takes 30 minutes once the HotBlock has come up to temperature.

### What temperature should the HotBlock setting be?

The HotBlock should be set to 130°C in order to achieve an internal temperature of 100 - 115°C in the Soil Extraction Cells. Monitor the internal temperature using the Temperature Reference Cell.

### How many samples can be extracted at a time?

Environmental Express offers both a 25-well and 35-well HotBlock with the appropriate well sizes to accommodate the Soil Extraction Cells.

### What does a complete Soil Extraction Cell System include?

- HotBlock: Catalog # SC150 (25-well) or SC151 (35-well).
- 24 or 34 Soil Extraction Cells, complete with inner lids, threaded caps, and Teflon encapsulated o-rings.
- 1 Temperature Reference Cell, complete with inner lid, threaded cap, Teflon encapsulated o-ring, and thermometer.

### What parts of the Soil Extraction Cell must be replaced and how frequently?

It is recommended that the Teflon encapsulated o-rings (K8004) be replaced every 10 – 20 extractions depending on the amount of use and the types of solvent being used. The threaded outer caps (K8003 or K8003R) may also need replacement from time to time depending on frequency of use.

### What is the warranty of the system?

The system can be purchased from Environmental Express and is covered under a 1-year warranty. If the system fails to adequately perform specified laboratory extractions under normal laboratory use, then the item is fully covered for a period of one year from the date of shipment. This warranty extends to parts, labor, and any approved transportation charges.

