

# ISOLUTE® ENV+

## IST Sample Preparation Products



### High capacity with exceptional purity and reproducible recoveries over a range of analyte polarities

ISOLUTE® ENV+ is a hyper-cross linked polystyrene polymer sorbent capable of extracting a wide range of polar and water soluble analytes from a variety of matrices. The optimized surface area, pore structure and absence of fines makes ISOLUTE ENV+ a highly effective and efficient solution to the traditionally difficult extraction of very polar analytes. ISOLUTE ENV+ enables high recoveries at high flow rates making it the SPE column of choice for a variety of environmental and agrochemical applications.

- High, reproducible recoveries even when using high flow rates
- Retention over a wide range of polarities
- Exceptional purity and narrow particle size distribution – no fines
- An efficient alternative to traditional silica based sorbents

ISOLUTE ENV+ products are available in a wide variety of standard configurations and are manufactured and quality controlled to an extremely high standard.

#### High Capacity

ISOLUTE ENV+ is capable of providing capacities of up to 50% of the sorbent mass. This high capacity combined with high flow rates allows for greater level of loading onto the column, increasing the level of flexibility of method choice.

#### High Flow Rates

Due to the absence of fines in the ISOLUTE ENV+ sorbent low column back pressures are achieved, resulting in higher recoveries even at high flow rates in excess of 60 mL/min. This allows for loading 1 L of water in approximately 15 minutes.

#### High Purity

The absence of monomers and high purity levels of column components ensures ISOLUTE ENV+ is suitable for high sensitivity applications. This cleanliness is achieved through an optimized resin cleaning process and high standards of quality control.

#### Particle Size Distribution

ISOLUTE ENV+ has a narrow particle size distribution eliminating fines from the final extract. This results in a much cleaner extract and prevents costly contamination of the final extract.

#### Batch-to-Batch Reproducibility

ISOLUTE ENV+ sorbent is quality control tested to ensure reproducibility and consistency in capacity from batch-to-batch.

#### Environmental Analysis

The ability of ISOLUTE ENV+ to effectively extract a wide variety of contaminants from water samples has been well documented and is the application for which ISOLUTE ENV+ was specifically designed. ISOLUTE ENV+ columns have been shown to be significantly more efficient, more widely applicable and give higher analyte recoveries when compared with traditional LLE<sup>1</sup> or C18 SPE columns.

#### Agrochemical Analysis

ISOLUTE ENV+ 500 mg/6 mL columns are ideally suited for the extraction of a number of trace herbicides and pesticides from water samples. The columns have been shown to be decisively efficient in the extraction of the carbamate herbicide asulam from a number of different water matrices<sup>2</sup>.

#### Food Analysis

In addition to the abundant and proven environmental and agrochemical applications of ISOLUTE ENV+, it also acts as an effective analytical tool in the food production industry. ISOLUTE ENV+ has been shown to be extremely successful in the extraction of Acrylamide from food samples<sup>3</sup>.

#### Extraction of Acid Herbicides from Water

| Analyte    | % Recovery (ABSOLUTE) |
|------------|-----------------------|
| Dicamba    | 98                    |
| Mecoprop   | 103                   |
| MCPA       | 93                    |
| 2, 4-D     | 91                    |
| Bromoxynil | 101                   |
| MCPB       | 106                   |
| 2, 4-DB    | 104                   |
| Bentazone  | 98                    |
| Toxynil    | 104                   |
| Benazolin  | 95                    |

1 liter water sample spiked at 100 ppb for each analyte, extracted using ISOLUTE ENV+, 200 mg/6 mL SPE column.

#### Extraction of Explosives from Water

| Analyte            | % Recovery (ABSOLUTE) |
|--------------------|-----------------------|
| 1,3-dinitrobenzene | 98                    |
| Tetryl             | 102                   |
| Nitrobenzene       | 98                    |
| Trinitrotoluene    | 106                   |
| 2-nitrotoluene     | 102                   |
| 3-nitrotoluene     | 106                   |
| 4-nitrotoluene     | 98                    |

1 liter water sample spiked at 0.4 ppb levels with each analyte, extracted using ISOLUTE ENV+, 200 mg/6 mL SPE column

#### Extraction of Phenols from Water

| Analyte               | % Recovery (ABSOLUTE) |
|-----------------------|-----------------------|
| Phenol                | 100                   |
| 2-chlorophenol        | 100                   |
| 2,4-chlorophenol      | 100                   |
| 2,4,6-trichlorophenol | 97                    |

1 liter water sample spiked at 100 ppb for each analyte, extracted using ISOLUTE ENV+, 200 mg/6 mL SPE column (sample loading rate 60 mL/min).

#### Bibliography

1. Gas Chromatographic analysis of pesticides in water with off-line solid phase extraction  
T Pihlstrom et al. Analytica Chimica Acta 356 (1997) 155-163
2. The analysis of asulam in drinking water by LC-MS  
Rao, R; Lu; L Powell, MW  
ThermoQuest application note AN507
3. Fermentation Reduces Free Asparagine in Dough and Acrylamide Content in Bread  
Fredriksson, H; Tallving, J; Rosen, J; Aman, P  
Cereal Chem. 81(5):650-653

#### Ordering Information for ISOLUTE ENV+ SPE columns

| Description               | Quantity | Part number |
|---------------------------|----------|-------------|
| ISOLUTE ENV+ 10 mg/1 mL   | 100      | 915-0001-A  |
| ISOLUTE ENV+ 25 mg/1 mL   | 100      | 915-0002-A  |
| ISOLUTE ENV+ 25 mg/10 mL  | 50       | 915-0002-G  |
| ISOLUTE ENV+ 50 mg/1 mL   | 100      | 915-0005-A  |
| ISOLUTE ENV+ 50 mg/3 mL   | 50       | 915-0005-B  |
| ISOLUTE ENV+ 50 mg/10 mL  | 50       | 915-0005-G  |
| ISOLUTE ENV+ 100 mg/1 mL  | 100      | 915-0010-A  |
| ISOLUTE ENV+ 100 mg/3 mL  | 50       | 915-0010-B  |
| ISOLUTE ENV+ 100 mg/6 mL  | 30       | 915-0010-C  |
| ISOLUTE ENV+ 100 mg/10 mL | 50       | 915-0010-H  |
| ISOLUTE ENV+ 200 mg/3 mL  | 50       | 915-0020-B  |
| ISOLUTE ENV+ 200 mg/6 mL  | 30       | 915-0020-C  |
| ISOLUTE ENV+ 500 mg/3 mL  | 50       | 915-0050-B  |
| ISOLUTE ENV+ 500 mg/6 mL  | 30       | 915-0050-C  |
| ISOLUTE ENV+ 1 g/6 mL     | 30       | 915-0100-C  |
| ISOLUTE ENV+ 1 g/15 mL    | 20       | 915-0100-E  |

#### Ordering Information for ISOLUTE ENV+ Fixed Well Plates

| Description                 | Quantity | Part number  |
|-----------------------------|----------|--------------|
| ISOLUTE-96 ENV+ 10 mg plate | 1        | 915-0010-P01 |
| ISOLUTE-96 ENV+ 25 mg plate | 1        | 915-0025-P01 |
| ISOLUTE-96 ENV+ 50 mg plate | 1        | 915-0050-P01 |

Pre-assembled ISOLUTE Array plates are available. To order, add the suffix P to the equivalent loose well part number.

#### Ordering Information for ISOLUTE ENV+ Loose Wells

| Description                         | Quantity | Part number |
|-------------------------------------|----------|-------------|
| ISOLUTE Array ENV+ 10 mg/1 mL wells | 100      | 915-0010-R  |
| ISOLUTE Array ENV+ 25 mg/1 mL wells | 100      | 915-0025-R  |

#### RapidTrace® SPE Workstation



Biotage offers a complete range of sample preparation consumables and instruments including the RapidTrace SPE Workstation. The RapidTrace is a modular, highly scalable and automated sample preparation platform designed for automated processing of 1 mL, 3 mL and 6 mL cartridges.

#### www.biotage.com

##### NORTH AMERICA

Main Office: +1 704 654 4900  
Toll Free: +1 800 446 4752  
Fax: +1 704 654 4917  
Order Tel: +1 704 654 4900  
press (4) at the auto attendant  
Order Fax: +1 434 296 8217  
ordermailbox@biotage.com

##### EUROPE

Main Office: +46 18 56 5900  
Fax: +46 18 59 1922  
Order Tel: +46 18 56 57 10  
Order Fax: +46 18 56 57 05  
order@biotage.com

##### JAPAN

Tel: +81 422 28 1233  
Fax: +81 422 28 1236  
jp\_order@biotage.com

To locate a distributor please visit our web site at [www.biotage.com](http://www.biotage.com).