

# Extraction of Acrylamide from Cooked Foodstuffs Using ISOLUTE® Multimode Columns

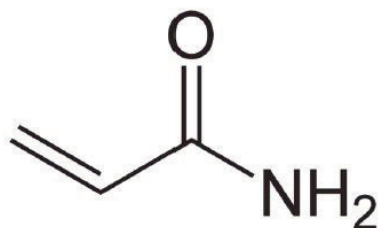


Figure 1. Structure of Acrylamide.

## Introduction

This method describes the clean-up of acrylamide from cooked foodstuffs, using a multimode retention mechanism (hydrophobic, cation and anion exchange) for retention of interfering food components. The analytical technique is LC-MS-MS.

Acrylamide is a very small, highly water soluble molecule, with negligible hydrophobic character. When the aqueous food extract is applied to the ISOLUTE® Multimode SPE column, the acrylamide passes through unretained, while more hydrophobic, or ionic interferences are retained by a variety of retention mechanisms.

It may be necessary to further pre-concentrate the extract after clean up. If so, we recommend the use of ISOLUTE® ENV+ SPE columns.

## Extraction Procedure

### Format

ISOLUTE® Multimode 300 mg/3 mL, part number 904-0030-B

### Pre-Treatment

1. Homogenize sample (2–4 g) with water (40 mL).
2. Add internal standard (800 µL).
3. Homogenize to extract the sample (2 min., 9,500 rpm).
4. Centrifuge the extract (3,600 g, 10 min).
5. Collect the supernatant.

### Condition

Solvate the column with acetonitrile (1 mL).

### Equilibration

Rinse with water (2 x 2 mL).

### Sample Loading

Apply the supernatant to the column (3 mL).

### Equilibration

Rinse with water (2 x 2 mL).

### Sample Loading:

Apply the supernatant to the column (3 mL).

### Interference Elution

N/A

### Analyte Elution

1. Discard the first portion (1 mL), and collect the remaining portion.
2. Pass through a syringe filter (0.22 µm).
3. Collect and pass through a centrifuge spin filter (16,800 g, 10–20 min.) until sufficient volume has been collected for analysis.

### Analytical Method

LC-MS/MS

### Reagents

1. Acetonitrile (HPLC-grade).
2. Water (Milli-Q).
3. Internal standard (deuterated acrylamide 2.0 µg/mL) in water.

### Additional information:

1. If not analyzing samples directly after homogenization, store at -20 Celsius until required.
2. If analyzing potato crisps (potato chips), extra centrifugation may be required. Freeze the extract to precipitate out. Thaw, then centrifuge (16,800 g, 10 min).

### Reference

Analysis of acrylamide in cooked foods by liquid chromatography tandem mass spectrometry. Rosen, -J et al Analyst, 2002, 127; 880-882.

## Ordering Information

Part Number	Description	Quantity
904-0030-B	ISOLUTE® Multimode 300 g/3 mL	50

### EUROPE

Main Office: +46 18 565900  
 Toll Free: +800 18 565710  
 Fax: +46 18 591922  
 Order Tel: +46 18 565710  
 Order Fax: +46 18 565705  
 order@biotage.com  
 Support Tel: +46 18 56 59 11  
 Support Fax: + 46 18 56 57 11  
 eu-1-pointsupport@biotage.com

### NORTH & LATIN AMERICA

Main Office: +1 704 654 4900  
 Toll Free: +1 800 446 4752  
 Fax: +1 704 654 4917  
 Order Tel: +1 704 654 4900  
 Order Fax: +1 434 296 8217  
 ordermailbox@biotage.com  
 Support Tel: +1 800 446 4752  
 Outside US: +1 704 654 4900  
 us-1-pointsupport@biotage.com

### JAPAN

Tel: +81 3 5627 3123  
 Fax: +81 3 5627 3121  
 jp\_order@biotage.com  
 jp-1-pointsupport@biotage.com

### CHINA

Tel: +86 21 68162810  
 Fax: +86 21 68162829  
 cn\_order@biotage.com  
 cn-1-pointsupport@biotage.com

### KOREA

Tel: +82 31 706 8500  
 Fax: +82 31 706 8510  
 korea\_info@biotage.com  
 kr-1-pointsupport@biotage.com

### INDIA

Tel: +91 11 45653772  
 india@biotage.com

Distributors in other regions  
 are listed on [www.biotage.com](http://www.biotage.com)

### Literature Number: IST1076A.V.1

© 2020 Biotage. All rights reserved. No material may be reproduced or published without the written permission of Biotage. Information in this document is subject to change without notice and does not represent any commitment from Biotage. E&OE. A list of all trademarks owned by Biotage AB is available at [www.biotage.com/legal](http://www.biotage.com/legal). Other product and company names mentioned herein may be trademarks or registered trademarks and/or service marks of their respective owners, and are used only for explanation and to the owners' benefit, without intent to infringe.