

Acrylamide by QuEChERS Extraction with LC/MS/MS Detection



UCT Featured Products

ECMSSC50CT-MP
4000 mg MgSO₄, 1000 mg NaCl,
in Mylar pouch

CUMPS15C18CT
150 mg, MgSO₄, 150 mg PSA and
50 mg endcapped C18,
2 mL centrifuge tube

Introduction:

Acrylamide is a neurotoxin and classified as a probable human carcinogen and genotoxicant.

LC/MS/MS Instrumentation	
LC	Thermo Accela 1250 pump
Column	Sepax C18, 150 mm x 2.1 mm, 3 μ m
Guard	Restek C18 2.1 x 20mm
Column Temperature	Ambient
Injection	20 μ L at 15 $^{\circ}$ C
Mobile Phase	A: water; B: methanol
Flow Rate	200 μ L/min

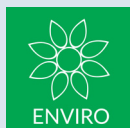
Procedure:

1. Extraction

- Add 5 g of homogenized sample to a 50 mL centrifuge tube.
- Fortify with ISTD.
- Add 10 mL of reagent water, vortex.
- Allow >15 minutes for hydration
- Add 10 mL of acetonitrile, vortex.
- Add salts from Mylar pouch **ECMSSC50CT-MP**
- Shake vigorously for 1 min
- Centrifuge at 5000 rpm for 10 min
- Supernatant is ready for clean-up

2. Clean-up

- Add 1 mL of supernatant to the 2 mL centrifuge tube **CUMPS15C18CT**
- Vortex for 30 sec.
- Centrifuge at 5000 rpm for 10 min.
- Transfer 500 μ L of extract into LC vial for analysis.



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Mobile Phase Program

Time	Mobile Phase
0 min	100% A
3 min	100% A
5 min	100% B
6 min	100% B
7 min	100% A
12 min	100% A*

*divert to waste for 0-1 min & 3-12 min

MS/MS: Thermo TSQ Vantage

Ion source	APCI
Ion polarity	positive mode
Discharge Current	22 V
Declustering voltage	11 V
Sheath gas	N ₂ at 10 arbitrary units
Auxiliary gas	N ₂ at 15 arbitrary units
Vaporizer Temp	380 °C
Ion Transfer Cap. Temp	250 °C
Scan Type	SRM
Dwell Time	150 ms
CID Pressure	0.5 mTorr

SRM Transitions

Analyte	Parent ion	Product ion 1	Collision Energy	S-lens
Acrylamide	72.0	55.0	9	43
	72.0	27.0	20	43
¹³ C ₃ -Acrylamide	75.1	58.0	10	50

Acrylamide Recovery

Matrix (n = 5)	Analyte Conc. ng/mL	Recovery %	Mean Conc. ng/mL	SD (%)	RSD (%)
French Fries	50	106	53	6.1	11.56
	250	106	265	9.8	3.71
Potato Chips	50	111	56	9.4	16.84
	250	103	257	32.2	12.54
Multigrain Cereal	50	98	49	5.9	11.93
	250	93	232	9.2	3.97



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