

Taurine in Milk Powder

Purospher® STAR RP-18 endcapped

Chromatographic Conditions

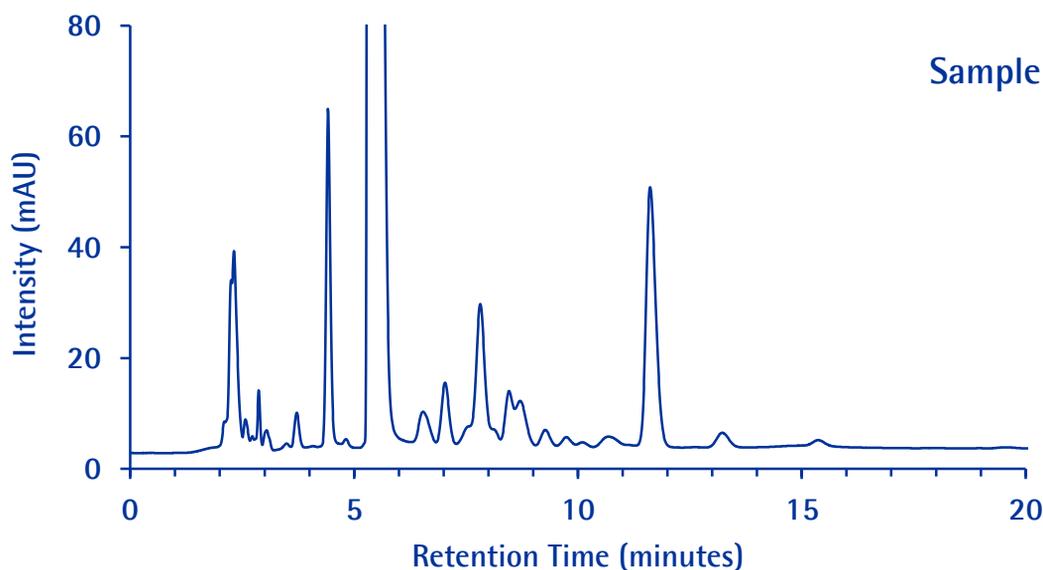
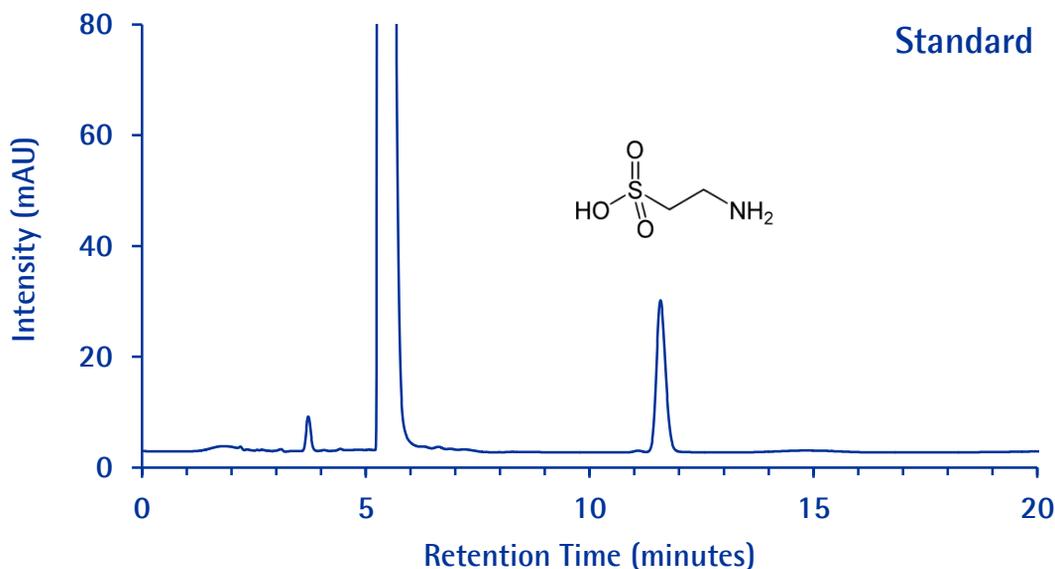
HPLC Column:	Purospher® Star RP-18 endcapped (5 µm) 250x4.6 mm	1.51456.0001
Injection:	20 µL	
Detection:	UV@ 254 nm	
Cell:	1µl/10mm	
Flow Rate:	1.0 mL/min	
Mobile Phase:	10mM sodium acetate (NaAC) buffer solution (pH4.2). Dissolve 0.82g NaAC in 800 mL H ₂ O, adjust pH to 4.2 with glacial acetic acid, add H ₂ O to 1L. Mix ACN and NaAC buffer solution 27:73 (v/v).	
Temperature:	30 °C	
Diluent	water	

- Sample:
1. Weigh 5.00g milk powder into a 100 mL volumetric flask. Add 80 mL of 50~60°C hot water and sonicate for 10 minutes. Cool the mixture to room temperature, add into 1.0 mL of 0.15 g/mL K₄Fe(CN)₆ solution, Vortex for 1 min. Add into 1.0 mL of 0.3 g/mL ZnAC solution, Vortex for 1 min. Add H₂O to volume.
 2. Centrifuge the mixture at 5000 rpm for 10 minutes. Store the supernatant in darkness at 4 °C if not used immediately .
 3. Take 1.0 mL of the supernatant mentioned above or standard solution into a 10 mL glass-stopper test tube. Add 1.0mL of 80 mM Na₂CO₃ buffer solution. (0.424g Na₂CO₃ in 40 mL H₂O, pH adjusted to 9.5 with 1M HCl. Add H₂O to total 50 mL volume)
 4. Add 1.0 mL of dansylchloride solution and blend the mixture well. (0.15g of dansylchloride is dissolved in 100 mL ACN.)
 5. Store the mixture in darkness for 2h (shake the mixture one time every 1h).
 6. Add 0.10 mL of 20mg/mL of methylamine hydrochloride aqueous solution to stop reaction.
 7. Filtrate supernatant with 0.45 µm filter membrane for analysis.

Pressure Drop: 172 Bar (2494 psi)

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Chromatographic Data

No.	Compound	Retention Time (min)	Theoretical Plates	Tailing Factor
1	Taurine	11.62	13476	1.08

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Repeatability: Analysis of repeated injections of 20 ppm µg/mL standard solution of sucrose and a 6 mg/mL standard solution of lactose (n=5).

Standard	Taurine
1	393.20
2	393.43
3	393.85
4	393.24
5	393.60
Average	393.47
STDEV	0.241
RSD (%)	0.1

Linearity – Lactose: Analysis of repeated injections (n=5) of standard solutions in the calibration range 5–35 mg/mL.

Concentration (mg/mL)	Intensity (mV)
5.0	103.32
10.0	211.08
15.0	309.89
20.0	393.13
25.0	525.71
30.0	632.32
35.0	719.12

