

Niacin and Niacinamide in Milk Powder

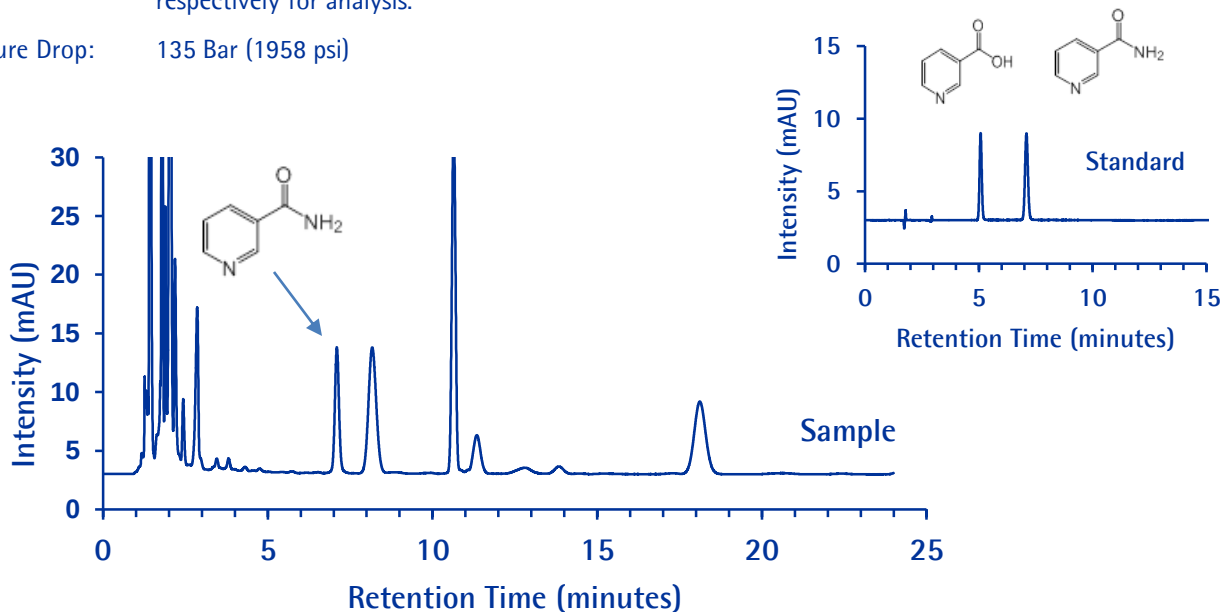
Purospher® STAR RP-18 endcapped

Chromatographic Conditions

HPLC Column: Purospher® Star RP-18 endcapped (5 µm) 150x4.6 mm 1.51455.0001
Injection: 10 µL
Detection: UV@ 261 nm
Cell: 1ul/10mm
Flow Rate: 1.0 mL/min
Mobile Phase: Add 70 mL methanol, 20 mL isopropanol, 9.1 g sodium heptanesulfonate into 910 mL H2O. Adjust pH value to 2.1 ± 0.1 with perchloric acid.
Temperature: 25 °C
Diluent water

Sample: Weigh 5.00g milk powder into a 150 mL Erlenmeyer flask. Add 25 mL of 45°C~50°C water, sonicate for 10 minutes. Cool the solution to room temperature. Adjust pH value of the mixture to 1.7 ± 0.1 with 2.4 mol/L of HCl aqueous solution, stand the solution for 2 minutes. Adjust the pH value to 4.5 ± 0.1 with 2.5 mol/L of NaOH aqueous solution. Transfer the mixture to a 50-mL volumetric flask, add H2O to volume. Filtrate the suspension with filter paper and 0.45 µm filter membrane respectively for analysis.

Pressure Drop: 135 Bar (1958 psi)



Chromatographic Data

No.	Compound	Retention Time (min)	Theoretical Plates	Tailing Factor
1	Niacin	5.1	12700	1.09
2	Niacinamide	7.1	13802	1.09

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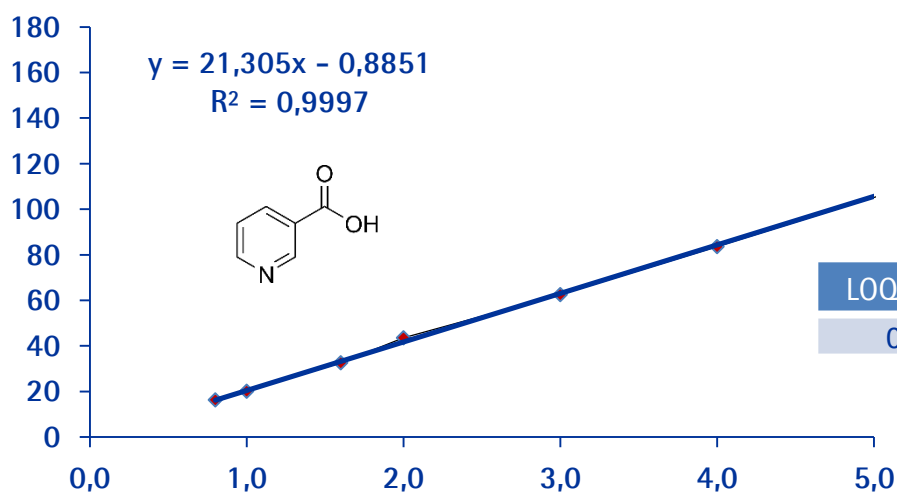
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Repeatability: Analysis of repeated injections of 2 ppm (µg/mL) Niacin solution (n=5).

Niacin	Intensity (mV)
1	43.536
2	43.130
3	43.244
4	43.787
5	43.096
Average	43.359
STDEV	0.30
RSD (%)	0.7

Linearity: Analysis of repeated injections (n=5) of Niacin standard solutions in the calibration range 0.8–8.0 ppm (µg/mL).

Concentration (ppm)	Intensity (mV)
0.8	16,29
1.0	20,11
1.6	32,59
2.0	43,54
3.0	62,46
4.0	83,61
8.0	169,8



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Repeatability: Analysis of repeated injections of 2 ppm (µg/mL) Niacinamide solution (n=5).

Niacinamide	Intensity (mV)
1	54.45
2	54.29
3	54.42
4	54.78
5	54.85
Average	54.56
STDEV	024
RSD (%)	0.4

Linearity: Analysis of repeated injections (n=5) of Niacinamide standard solutions in the calibration range 0.8–8.0 ppm (µg/mL).

Concentration (ppm)	Intensity (mV)
0.8	21,18
1.0	26,00
1.6	42,07
2.0	54,45
3.0	83,20
4.0	111,2
8.0	216,9

