

APPLICATION NOTE



Determination of five Amino Acids in Total Parenteral Nutrition Formulations

Developments carried out with MAPES team from IMRCP (Paul Sabatier University, Toulouse, France)



Parenteral nutrition solutions contain mixed ions, sugars, and amino acid products. An error in the concentration of these components increased risk for the patient. After the development of CE methods for ions and sugars control, WynSep has developed an analytical method in order to determine five amino acids concentration in parenteral nutrition formulations. Thus a capillary electrophoresis method coupled to an indirect C4D detector was used to quantify tryptophan, Leucine, iso-Leucine, Tyrosine, and Valine. With this method other Amino Acids can be detected but not identified in this Application Note.



Tested Parenteral Nutrition formulation : NP100 PREMATURES AP-HP from Fresenius Kabi



For 1000 mL

Iso-Leucine : 0.95 g
Leucine : 2.15 g
Tryptophan : 0.43 g
Tyrosine : 0.15 g
Valine : 1.11 g

ANALYTICAL CONDITIONS

Buffer : Glacial Acetic Acid

Capillary : silica bare-fused

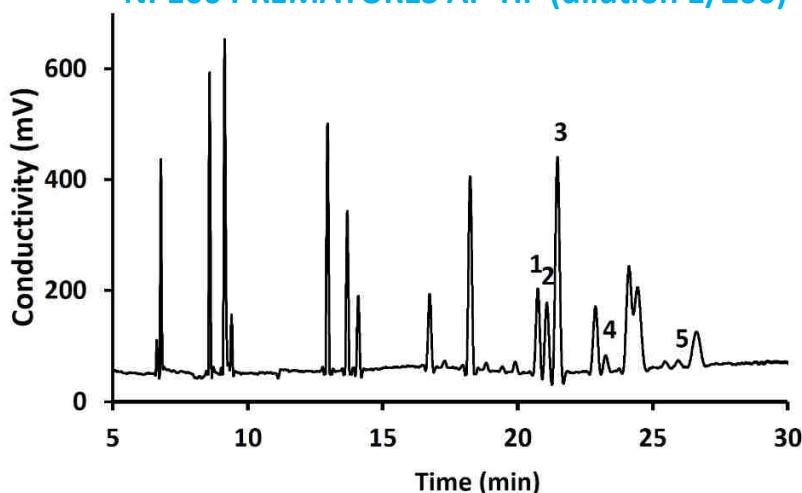
Injection : hydrodynamic, 50 mbar, 10 s

Voltage : +15 kV

Detection : C4D, indirect

Temperature : 25 °C

NP100 PREMATURES AP-HP (dilution 1/200)



N°	Identification	Concentration (g/L)
1	Valine	1.03
2	Iso-Leucine	0.92
3	Leucine	2.03
4	Tryptophan	0.45
5	Tyrosine	0.11

5 Amino acids were included in this study. Others compounds were not identified

CAPILLARY ELECTROPHORESIS FOR AMINO ACIDS



FAST SEPARATION



ECONOMIC,
low cost consumables



SEPARATION WITH HIGH
RESOLUTION



ECOLOGIC
no gas, no solvent