



VILLA LABECO s.r.o.
Chrapčiakova 1
052 01 Spišská Nová Ves

ISOTACHOPHORESIS

APPLICATION NOTE No. 4

DETERMINATION of LYSINE

MAIN FEATURES:

L-lysine is an important feed component. Accurate, rapid and very reproducible determination of it is necessary for optimal process control. ITP determination fulfills all requirements for a routine procedure, i.e. high accuracy, high reproducibility and no sample pre-treatment (only filtration). Time of analysis is about four minutes. Lysine is analysed as a cation because a small number of cation components accompany it in the samples.

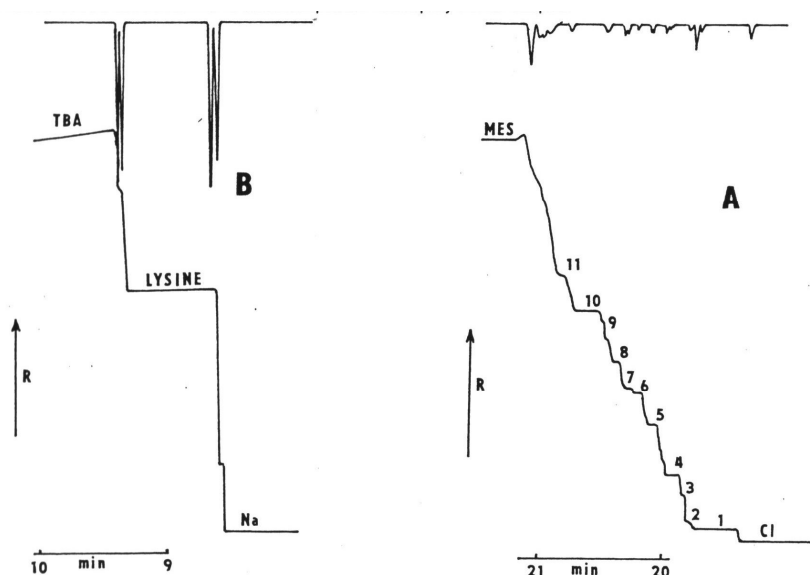


Fig. 1 : Isotachophoreograms

A – record of the anionic substances of the crude product of lysine from analytical column
1 – 11 unidentified zones
B – record from the analysis of lysine (cation mode) present in the crude product
Analytical column was connected to the injection valve

Conditions : leading electrolyte (LE):
A - 10^{-2} M Cl + $2 \cdot 10^{-2}$ M histidine + 0,1% hydroxyethylcellulose /HEC/, pH=6
B - 10^{-2} M Na + acetic acid + 10^{-3} M EDTA + 0,1% HEC, pH=5,4
EDTA was added due to elimination Ca a Mg.

terminating electrolyte (TE):
A - $5 \cdot 10^{-3}$ M morpholinoethanesulphonic acid + TRIS
B - $5 \cdot 10^{-3}$ M tetrabutylammonium perchlorate

Sample: 10 μ l of solution of the crude product content of lysine 2 mg/ml

Comparison of ITP determination of lysine with
a referee manometric method

No.	ITP	MAN
1	33,535	33,07
2	33,145	33,20
3	33,17	33,17
4	33,60	33,49
5	33,53	33,36
6	33,25	33,52
Average : 95% interval	33,37+/- 0,18	33,32+/- 0,18
Average : 99% interval	33,37+/- 0,29	33,32+/- 0,28

Literature:

1. E. Čižmarová, Diplomová práca, PF UK Bratislava, 1981
2. V. Madajová, D. Kaniánsky, E. Čižmarová, M. Hudec, Isotachophoretic determination of lysine in fermentation broth, J. Chromatogr., 320 /1985/, 131

CZE and ITP analysers are produced by :
Villa Labeco s.r.o., Chrapčiakova 1, 052 01 Spišská Nová Ves, Slovakia
www.villalabeco.sk