

# R Prescription for success

## 930794

Rx 020 8/90

#### CAPILLARY ELECTROPHORESIS SEPARATION OF EPINEPHRINE ENANTIOMERS



| CONDITIONS ON WATERS QUANTA™ 4000 |   | PEAK IDENTIFICATION: |
|-----------------------------------|---|----------------------|
| MODE:                             | FZCE                                      | 1. Epinephrine (-)   |
| BUFFER:                           | 25 mM TRIS-H <sub>4</sub> PO <sub>4</sub> | 2. Epinephrine (+)   |
|                                   | pH = 2.5                                  |                      |
|                                   | 15 mM Heptakis(2,6-di-O-                  |                      |
|                                   | methyl)-B-Cyclodextrin                    |                      |
| MODIFIER:                         | 20 % MEOH                                 |                      |
| CAPILLARY:                        | 35 cm x 50 μm i.d.                        |                      |
| VOLTAGE:                          | + 18 KV                                   |                      |
| DETECTOR:                         | UV @ 214 nm                               |                      |
| INJECTION:                        | 10 sec x 10 cm Hydrostatic                |                      |
| SAMPLE MATRIX:                    | Standard Solution                         | REFERENCE:           |

@ 0.5 mg/ml

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### **INTERESTING FACTS**

1. Capillary electrophoresis represents a new technique available for chemists to achieve chiral separations with minimal sample preparation. This separation is achieved by the judicious choice of buffers, pH, organic modifier and the chiral discriminator- a derivatized cyclodextrin.

2. CE offers high efficiency separations with a very short analysis time. HPLC chiral separations require either a special chiral stationary phase (CSP) or derivatization to form diastereomers. CE eliminates both specialized stationary phases and derivatization.

3. For this separation the capillary length was decreased to 35 cm to reduce the analysis time from 12 minutes to 5 minutes. The separation efficiency was not affected by reducing the capillary length.

4. The excellent signal to baseline noise level noted in this electropherogram is typical of the Quanta 4000's performance using the discretely variable UV/VIS detector.

5. Other chiral separations performed on the Quanta 4000 are presented in Rx 017 8/90 through Rx 022 8/90.

6. Epinephrine is contained in many injectable local anesthetic injectable solutions and must be assayed during production and on all stability control samples.

7. The electrolyte is prepared by adding 15 mM Heptakis(2,6-Di-O-methyl)- $\beta$ -Cyclodextrin to 25 mM Tris which has been adjusted to pH = 2.5 with phosphoric acid. After filtering the buffer, 20% MeOH is added. The derivatized  $\beta$ -cyclodextrin, which is more soluble than underivatized  $\beta$ -cyclodextrin is available from Sigma Chemical, P.N. H 0513.