

# SHINWA EXPRESS

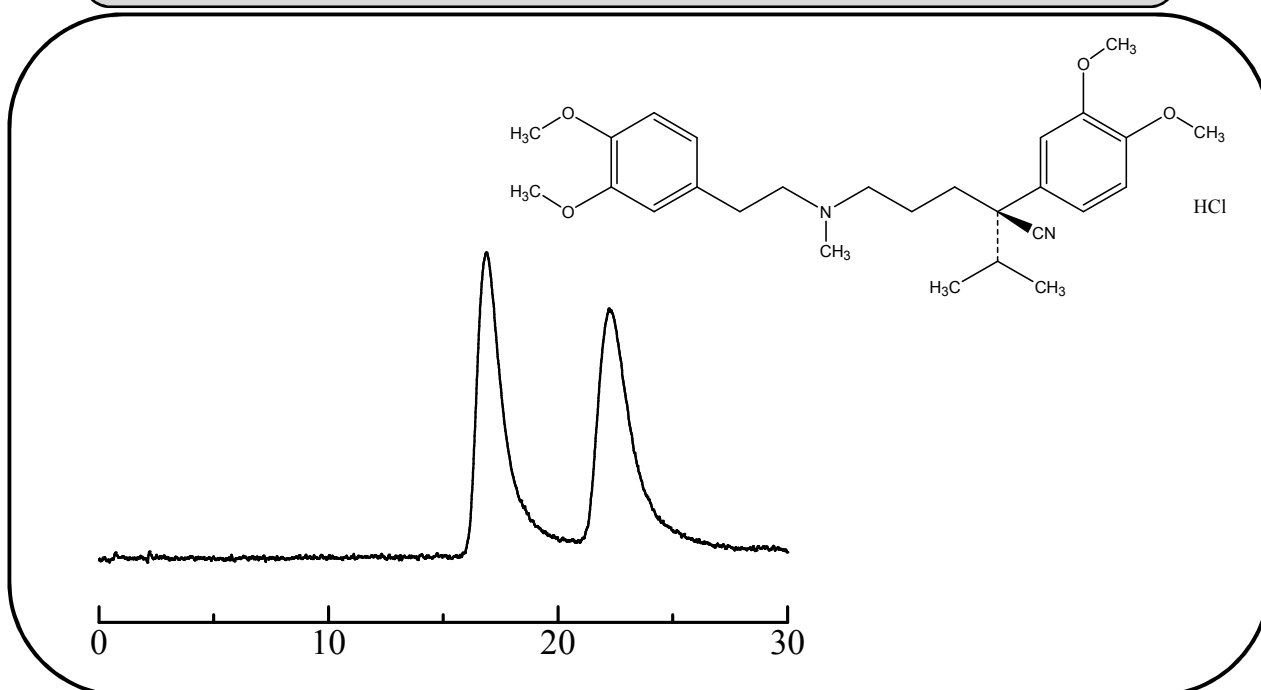
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## Analysis of verapamil hydrochloride using the ULTRON ES-OVM

Verapamil hydrochloride is a phenylalkylamine calcium antagonist. It differs from highly vascular selective dihydropyridine calcium antagonists in that it is also used in the treatment of angina, heart attacks, and other ischemic heart diseases; and is also believed to be effective in the treatment of supraventricular arrhythmia. Shown below is a reversed-phase analysis of verapamil hydrochloride performed using the ULTRON ES-OVM.

### Verapamil hydrochloride (anti-arrhythmic)

Column: ULTRON ES-OVM (5  $\mu$ m)

Column size: 150 mm L x 4.6 mm I.D.

Mobile phase: 20 mM  $\text{KH}_2\text{PO}_4$  + 20 mM  $\text{K}_2\text{HPO}_4$  (pH 6.0)/  
 $\text{CH}_3\text{CN} = 91/9$ 

Flow rate: 1.0 mL/min

Column temp.: 25°C

Detection: UV-278 nm

Sample: 200 mg/L (in methanol)

Injection vol.: 2  $\mu$ L

### ●Features of the ULTRON ES-OVM

1. Particularly effective for separations of chiral compounds.
2. Employs a highly denaturation resistant protein ligand\* (ovomucoid) as a stationary phase.
3. Displays a wide range of chiral recognition.
4. No sample pretreatment required for chiral separations. (Blood plasma samples can be analyzed without pretreatment.)
5. Can be used for reversed-phase analyses.
6. Trace analyses possible (several nanograms).

\*Ligand: A substance that binds selectively with a specific receptor.

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## ■ Analytical column specifications ■

| Product name                     | Particle size (μm) | Column dimensions<br>Length × I.D. (mm) |
|----------------------------------|--------------------|---|
| ULTRON ES-OVM                    | 5                  | 150 × 2.0                               |
| ULTRON ES-OVM                    | 5                  | 150 × 4.6                               |
| ULTRON ES-OVM                    | 5                  | 150 × 6.0                               |
| ULTRON ES-OVM-C                  | 5                  | 150 × 4.6                               |
| ULTRON ES-OVM                    | 10                 | 250 × 4.6                               |
| ULTRON ES-OVM Prep (preparative) | 10                 | 250 × 20.0                              |

## ■ Guard column specifications ■

| Product name                                    | Particle size (μm)      | Column dimensions<br>Length × I.D. (mm) |
|---|-------------------------|---|
| ULTRON ES-OVM.G                                 | 5                       | 10 × 4.0                                |
| ULTRON ES-OVM Prep.G (preparative guard column) | 10                      | 15 × 8.0                                |
| ULTRON ES-OVM (guard cartridges (x2))           | 5                       | 5 × 2.0                                 |
| Guard cartridge holder (with adaptor)           | For 5 × 2.0 mm columns  |   |
| ULTRON ES-OVM (guard cartridges (x 2))          | 5                       | 10 × 4.6                                |
| Guard cartridge holder (with adaptor)           | For 10 × 4.6 mm columns |   |

### ● Protecting columns using guard columns

By using guard columns together with analytical columns, analytical columns can be protected from contamination, enabling longer column lifetimes. The use of guard columns is particularly recommended when analyzing samples containing large amounts of impurities.

Guard cartridges are also available when guard columns are changed frequently.

Please use guard columns with the same or smaller inner diameter than that of the analytical column being used.

### ● ULTRON ES-OVM-C (new product)

Clopidogrel bisulfate evaluation conditions based on USP standards employed for shipping inspections.

(Performance reports included with columns.)



Please feel free to contact us with questions related to analyses. Column screening services and demonstration columns are also available.

Please be aware that specifications and prices are subject to change without prior notification.