

# SHINWA EXPRESS

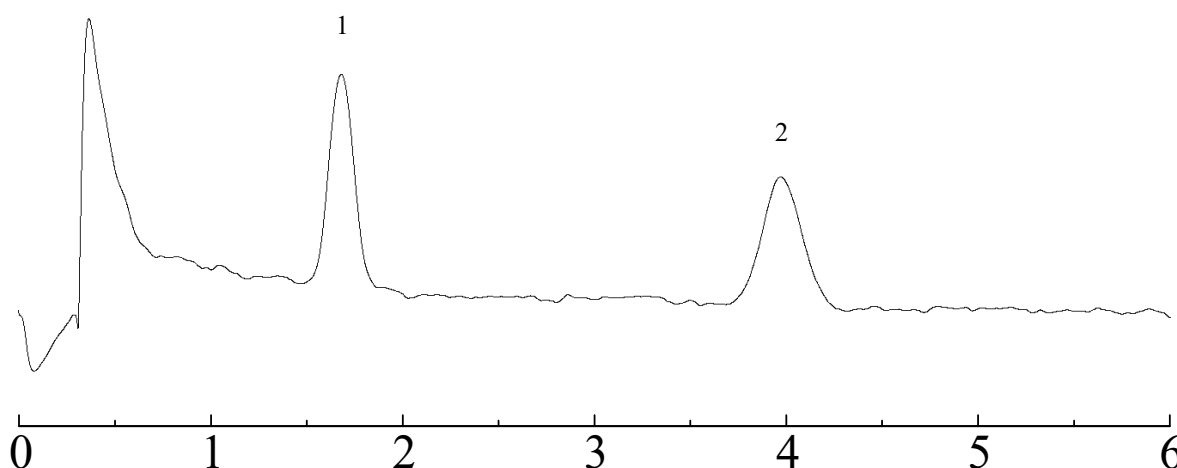
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## Analysis of piperacillin hydrate using Sunpak-H

~(4) Residual solvents~

Piperacillin is a penicillin antibiotic drug. Shown below is an analysis of piperacillin hydrate performed using a column packed with a Sunpak-H (Styrene-Divinylbenzene) packing material and in accordance with the Japanese Pharmacopoeia.

**Sunpak-H 100/120**1. Acetone  
2. Ethyl acetate**System suitability**

System performance: The resolution is 7.1.

(acetone and ethyl acetate are eluted in this order with the resolution between these peaks being not less than 2.0.)

Column: 1.1 m x3.2 mm I.D. Glass

Injection port temp.: 200°C

Sample: acetone, ethyl acetate

Carrier gas: 33 mL/min N<sub>2</sub> (Adjust so that the retention time of ethyl acetate is about 4 minutes.)

Column temp.: 145°C

Detector: 200°C (FID)

Sample volume: 2.0 µL

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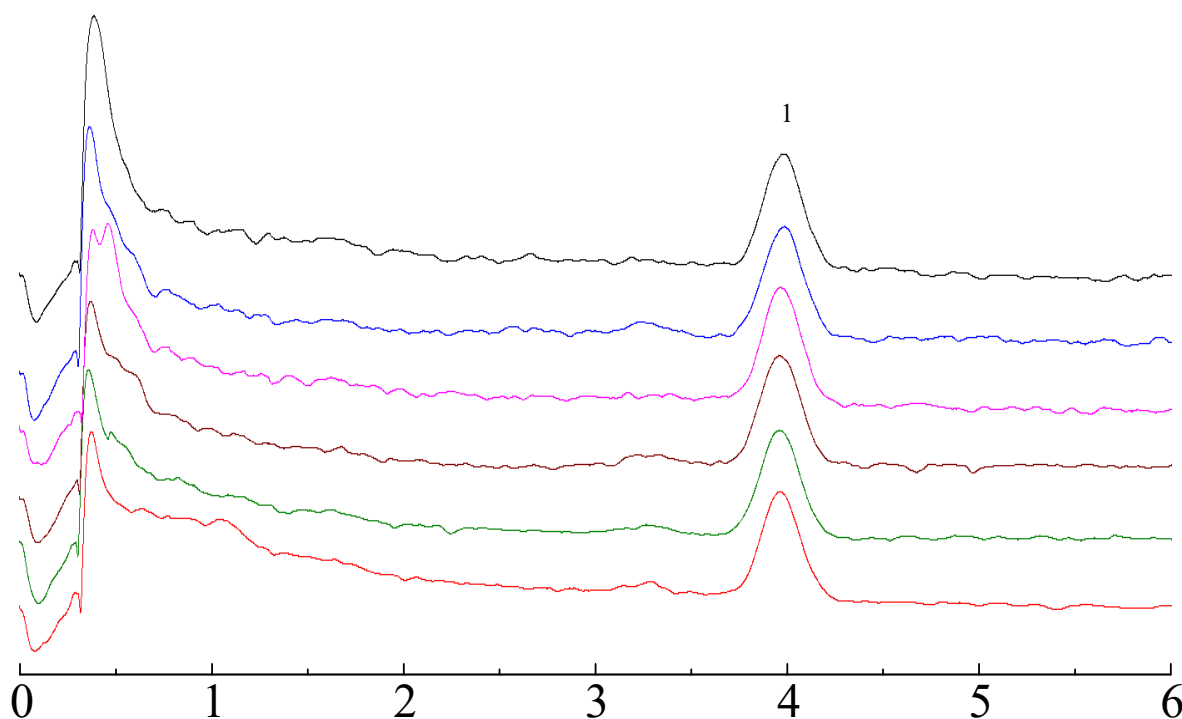
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**Sunpak-H 100/120**

1. Ethyl acetate



System repeatability: The relative standard deviation is 2.3%  
 (When the test is repeated 6 times, the relative standard deviation of the peak area of ethyl acetate is not more than 10.0%)

Column:	1.1 m x 3.2 mm I.D. Glass	Column temp.:	145°C
Injection port temp.:	200°C	Detector:	200°C (FID)
Sample:	ethyl acetate	Sample volume:	2.0 µL
Carrier gas:	33 mL/min N <sub>2</sub> (Adjust so that the retention time of ethyl acetate is about 4 minutes.)		

■ Packing material specifications and price ■

Product name	Weight	Price
Sunpak-H 100/120	20 g (75 mL)	87,000 JPY

■ Packed column specifications and price ■

Product name	Column material	Dimensions	Price
Sunpak-H 100/120	Glass (For GC-2014 systems)	1.1 m x 3.2 mm I.D.	90,200 JPY

Prices for glass columns for Shimadzu systems other than the GC-2014, and systems manufactured by other manufacturers will differ from that shown above. The prices shown above are applicable as of September 24<sup>th</sup>, 2018. Please contact us for pricing.

Please feel free to contact us with questions related to analyses.

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