

**CoreFocus**  
**Report**  
**No.437**

LC Reversed-phase Shim-pack™ Series

**Shim-pack Scepter™ C18-120**  
**Shim-pack UFPLC**  
**Preparative Purification of Ibuprofen and**  
**Its Related Substance**

**Keywords: NSAIDs, anti-inflammatory, cold medicine**

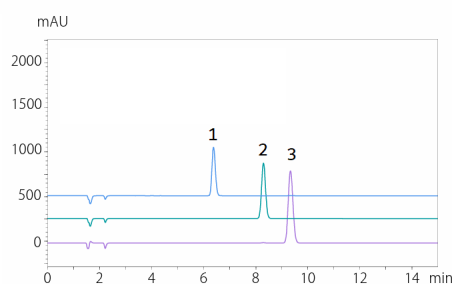


Fig.1 Chromatogram of Fraction Obtained by Nexera UFPLC (Nexera XR)

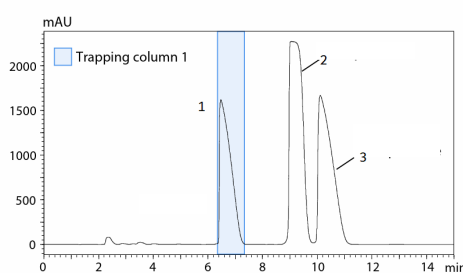


Fig. 2 Preparative LC Chromatogram of Ibuprofen (2000µL Injection, Nexera UFPLC)

1. Ibuprofen
2. Valerophenone
3. 4-Isobutyl-acetophenone (1.0 µmol/L each)

Table 1 Analytical Conditions for Purity Verification

System	: Nexera™ XR*1
Column	: Shim-pack Scepter C18-120 (150 mm L x 4.6 mm I.D., 5 µm), P/N : 227-31020-05
Mobile phase	: A) 1% (wt/v) Chloroacetic acid in water (pH 3*2) B) Acetonitrile A/B = 40 : 60 (v/v)
Flow rate	: 0.8 mL/min
Column temp.	: 30 °C
Detection	: 230 nm (SPD-40V, Standard flow cell)
Injection vol.	: 10 µL

\*1 600 mm x 0.3 mm I.D. tubing was used to connect the SIL-40C XR autosampler to the column inlet

\*2 pH 3.0 adjusted with ammonium hydroxide

Table 2 Preparative and Purification LC

System	: Nexera UFPLC
<b>Preparative LC Conditions</b>	
Column	: Shim-pack Scepter C18-120 (150 mm L x 20 mm I.D., 5 µm), P/N : 227-31102-03
Mobile phase	: A) 1% (wt/v) Chloroacetic acid in water (pH 3*2) B) Acetonitrile A/B = 40 : 60 (v/v)
Flow rate	: 20 mL/min
Column temp.	: Ambient
Detection	: 230 nm (SPD-M40, High pressure prepared flow cell)
Injection vol.	: 2000 µL
<b>Rinsing Conditions</b>	
Column	: Shim-pack UFPLC 20 x 30 (30 mm L x 20 mm I.D., 20 - 30 µm), P/N : 228-80220-41
Rinse solvent	: A) Acetonitrile/water = 2 : 98 (v/v) B) 0.2 % Formic acid in water C) Water
Time program	: A 40 mL/min (0.01-3 min) → B 15 mL/min (3.01-11 min) → C 40 mL/min (11.01-15.9 min)
<b>Elution Conditions</b>	
Eluent	: Acetonitrile
Flow rate	: 9 mL/min
Detection	: 230 nm (SPD-40V, Preparative flow cell)

Source : Application News an\_01-00464 ([JP](#), [ENG](#))

CoreFocus, Shim-pack, Shim-pack Scepter and Nexera are trademarks of Shimadzu Corporation or its affiliated companies in Japan and/or other countries.

**Shimadzu Corporation**  
**www.shimadzu.com/an/**

**For Research Use Only. Not for use in diagnostic procedures.**

This publication may contain references to products that are not available in your country. Please contact us to check the availability of these products in your country.

The content of this publication shall not be reproduced, altered or sold for any commercial purpose without the written approval of Shimadzu.

Company names, products/service names and logos used in this publication are trademarks and trade names of Shimadzu Corporation, its subsidiaries or its affiliates, whether or not they are used with trademark symbol "TM" or "®". Third-party trademarks and trade names may be used in this publication to refer to either the entities or their products/services, whether or not they are used with trademark symbol "TM" or "®".

Shimadzu disclaims any proprietary interest in trademarks and trade names other than its own.

The information contained herein is provided to you "as is" without warranty of any kind including without limitation warranties as to its accuracy or completeness. Shimadzu does not assume any responsibility or liability for any damage, whether direct or indirect, relating to the use of this publication. This publication is based upon the information available to Shimadzu on or before the date of publication, and subject to change without notice.