

# ULTRON PS-80 Series

## Instruction Manual

### 1. Introduction

Thank you for purchasing the ULTRON PS-80 series packed column for high-performance liquid chromatography. The PS-80 series of columns are packed with a strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer. There are 4 types of columns in the PS-80 series:

- PS-80H : designed especially for analysis of organic acids.
- PS-80N, C, P : designed especially for analysis of sugars and sugar alcohols.

ULTRON PS-80 columns, which are manufactured under highly controlled conditions, must pass a series of strict tests before being accepted for shipment. To ensure optimal performance and durability of the column, please read these instructions carefully before using this column.

### 2. Specifications

<b>Base material</b>	Sulfonated styrene-divinylbenzene resin
<b>Degree of cross-linkage</b>	8 %
<b>Particle size</b>	10 $\mu\text{m}$
<b>Counter ion</b>	PS-80H: Hydrogen ( $\text{H}^+$ ) PS-80N: Sodium ( $\text{Na}^+$ ) PS-80C: Calcium ( $\text{Ca}^{2+}$ ) PS-80P: Lead ( $\text{Pb}^{2+}$ )

column name	Dimensions (mm)	Max. operating pressure (MPa)	Max. operating temperature ( $^{\circ}\text{C}$ )	flow rate range (mL/min)
PS-80H	250 x 2.0	4.0	80 (recommended 60)	0.03 ~ 0.06
PS-80H	300 x 8.0	4.0	80 (recommended 60)	0.5 ~ 1.0
PS-80N	300 x 8.0	4.0	80 (recommended 60)	0.5 ~ 1.0
PS-80N	500 x 8.0	6.0	80 (recommended 60)	0.5 ~ 1.0
PS-80C	300 x 8.0	4.0	90 (recommended 80)	0.5 ~ 1.0
PS-80P	300 x 8.0	4.0	90 (recommended 80)	0.5 ~ 1.0

### 3. Shipment solvent

- PS-80H : aqueous solution of perchloric acid (pH 2.1)
- PS-80N, C, P : pure water.

### 4. Mobile phase and sample

- Ensure to filter samples and mobile phases using a membrane filter with a mesh size of 0.45  $\mu\text{m}$  or smaller before using. Failure to filter mobile phases, etc. can lead to blockages of column filters and increases in analytical pressures.
- Ensure to thoroughly degas mobile phases prior to use. Insufficient degassing of mobile phases can lead to the formation of bubbles inside analytical instruments and columns resulting in problems with analyses.
- The columns in this series are used with water or the appropriate aqueous acid mobile phases. The mobile phase may contain up to 30% acetonitrile.

## 5. Precautions for use

- Before installation the column, replace the liquid in the system with the mobile phase to be used.
- Tubing must have flat ends and must bottom out in the column endfitting. Tubing must be connected to the column correctly to avoid creating a void between the column frit and tubing, which can cause a leak and result in poor column performance.
- Install the column according to the direction of the arrow.
- Do not remove the column from LC system before the pressure drops zero.
- Flow rate direction of mobile phases is as indicated on the column label.
- Avoid using a column repeatedly near the pressure limit or making abrupt changes in pressure to prevent shortening of the column life. The degradation of column performance is likely to occur when used at higher temperatures.
- Please flow the mobile phase at an initial flow rate 0.1 mL/min(0.01 mL/min for PS-80H 250 x 2.0) in order to avoid the danger of sudden pressure increases.
- Metal ion and amino compounds in sample or mobile phase may degrade the column performance. Please use guard column in order to avoid the above trouble.
- Do not subject to shock such as dropping, etc.
- Performance of the column should be carried out in accordance with the enclosed “COLUMN PERFORMANCE REPORT”.

## 6. Column cleaning and regeneration

When the column performance deteriorates, try cleaning the column using regeneration solution as below at 0.5 mL/min(0.03 mL/min for PS-80H 250 x 2.0) at 50°C for 2 hours.

### (Regeneration column performance)

column name	Regeneration solution	Temperature (°C)	Procedure
PS-80H	50mM HCl	50	at 0.5 mL/min for 2 hours
PS-80N	50mM NaOH	50	at 0.5 mL/min for 2 hours
PS-80C	50mM Ca(NO <sub>3</sub> ) <sub>2</sub> · 4H <sub>2</sub> O	50	at 0.5 mL/min for 2 hours
PS-80P	50mM Pb(NO <sub>3</sub> ) <sub>2</sub>	50	at 0.5 mL/min for 2 hours

## 7. Column storage

- Do not allow the column packing material to dry out.
- Close the column with end stop plugs tightly and store at cool and dark place.
- If it will not be used for a long time, flow the mobile phase at a flow rate of 0.5 mL/min (0.03 mL/min for PS-80H 250 x 2.0) for about 1 hour at least once a month.

ULTRON series packed columns are shipped under highly controlled conditions. However, if you should find any defect, please contact your dealer or Shinwa.

Note that Shinwa does not warrant the product against column life or deterioration caused by the failure to follow the above instructions.



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