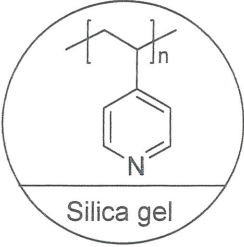


INSTRUCTION MANUAL FOR DAICEL DCpak[®] P4VP Columns



Please read this instruction sheet completely before using this column

Product information

Denomination	DAICEL DCpak [®] P4VP
Selector	Poly(4-vinylpyridine) (Immobilized to silica gel)  Silica gel
Particle size	5 μ m
Column end	Based on the Waters gauge
Sealed solvent	Ethanol

(Each column is QC-tested and examined before shipping. Please refer to the Column Performance Report for the QC- test result.)

Warning:

The column is designed for 34.35MPa maximum pressure and for 30MPa daily pressure.
Please use the column **neither** at a pressure beyond 30MPa **nor** at the temperature over 40°C.

Purge the residual solvent in the system (including autoinjector syringe, needle, and injection loop) with one of the recommended modifiers (see p.2) before connecting the column to the SFC instrument.

Operating condition

Flow direction	Indicated on the tag
Pressure	30MPa (~ 305 kgf/cm ²)
Temperature	0~40 °C

* The relevant backpressure value is the one generated by the column itself.

Important notice

- ⇒ **This column is not for chiral separation.**
- ⇒ **Do not dismantle the column hardware.**
- ⇒ **The instruction for DCpak P4VP columns cannot be applied to any other DAICEL columns.**



Recommended mobile phase

The recommended mobile phase for SFC is shown below.
And, this column can also be used under HPLC condition.
Please contact our technical assistance service before using any other modifiers than the recommended ones below

A Mobile phase

Composition	CO ₂ /Modifier
	100/0 ~ 40/60

- Methanol is recommended as the typical modifier. Ethanol and 2-propanol can also be used instead.
- The elutropic strength is in the order of methanol > ethanol > 2-propanol, if the same volume percentage of the modifier is applied. This tendency becomes more notable for analytes of higher polarity.
- A higher modifier content results in a shorter retention time.
- A mixture of the above modifiers can also be applied. When an aprotic modifier is employed, addition of an alcohol in a small amount may help to sharpen the peak shape.
- Be careful! Increasing modifier content leads to higher column head pressure, which should not exceed 30MPa.

B Additive

- When you evaluate basic and/or acidic samples, you can conduct without any additives. However, additives shown in the table may sharpen the peak shape.
- The typical concentration is 0.1vol% of the total mobile phase (e.g. 0.5% of additive in the modifier to get the mobile phase composition of CO₂/modifier 80/20 v/v).
- Flush the column with more than 10 column volumes of a mobile phase without additives before disconnecting the column.
- CAUTION! When an acidic modifier (e.g. TFA/MeOH) is used, the retention behavior may change dramatically due to pyridinium salt formation on the polymer side chain. In such case, the retention behavior will be regenerated by flushing with basic modifier (e.g. DEA/MeOH).

Additive for basic analyte	Additive for acidic analyte
Ammonium formate, Ammonium acetate ~0.1vol% of total mobile phase	

Sample preparation

- Sample should be dissolved in the modifier so far as possible and be filtered through a membrane with pore size around 0.5 μm before injection.

Column storage and cleaning

- Remove the column from the instrument after the complete release of the inner pressure. Disconnecting the column under a high inner pressure may cause hazards by CO₂ spouting and deteriorate the column sealing by temperature shock.
- When removing column from the system, loosen carefully and slowly the connection to avoid the possible CO₂ spouting.
- Once disconnected, the column can be stored at ambient temperature.
- When losing reproducibility of the separation, clean the column with more than 10 column volumes of ethanol at 1.0 mL/min.

