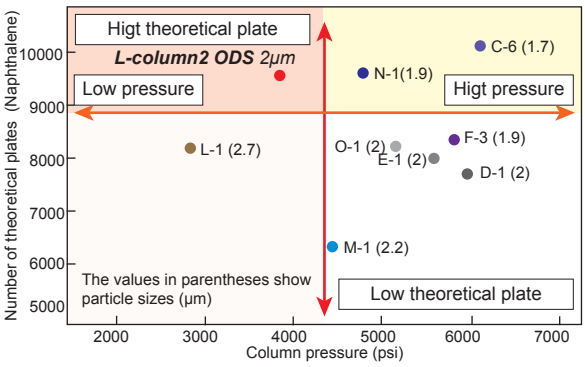
L-column2 ODS, 2μm

Innovation of columns for UHPLC

L-column2 ODS, 2μm was developed with usability in mind. Its low pressure reduces the load of columns and equipment, and its high durability provides a high theoretical plate number for a wide range of mobile phase flow rates. Therefore, ***L-column2 ODS, 2μm*** is an ideal 2-μm particle column.

■ Low back pressure and high theoretical plate number

The back pressure of ***L-column2 ODS*** is low due to thorough quality control and superior packing technology. This means that a high theoretical plate number for a 2-μm particle column can be obtained using a general-purpose HPLC system.
Figure 12 is plot of the theoretical plate number versus back pressure for various brands of columns for UHPLC. The relationship between back pressure and the theoretical plate number of UHPLC columns are clearly different depending on the manufacturer.
L-column2 ODS, 2μm is suitable for a wide range of analytical conditions because it has low back pressure in addition to a high theoretical plate number, making it a superior column.

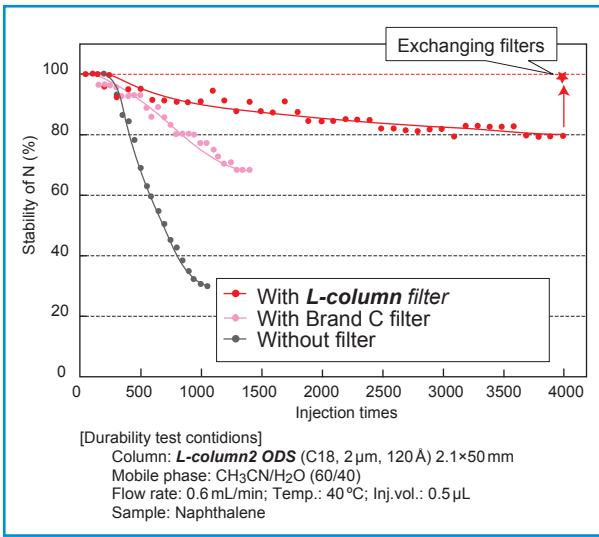


[Analytical conditions]
Column: 2.1×50 mm or 2.0×50 mm (C18)
Mobile phase: CH_3CN/H_2O (50/50)
Flow rate: 0.6 mL/min; Temp.: 25 °C; Detection: UV 254 nm; Inj.vol.: 0.5 μL

Fig. 12 Relationship between column pressure and theoretical plate number.

■ High durability

L-column2 ODS, 2μm is packed under very high pressure to endure the high pressures that occur during use. Because it is not influenced by the pressure fluctuations that occur during sample injection, ***L-column2 ODS, 2μm*** has the stability for long-term use.
When ***L-column*** *pre-column filter* is used, the durability of a column is further improved because the filter prevents insoluble elements in the mobile phase and the sample from entering the column (Fig. 13).

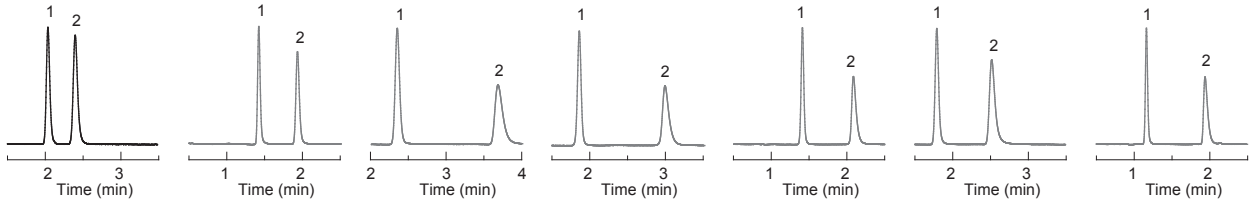


[Durability test contidions]
Column: ***L-column2 ODS*** (C18, 2 μm, 120 Å) 2.1×50 mm
Mobile phase: CH_3CN/H_2O (60/40)
Flow rate: 0.6 mL/min; Temp.: 40 °C; Inj.vol.: 0.5 μL
Sample: Naphthalene

Fig. 13 Effect of pre-column filter on column stability.

■ Low adsorption

Highly accurate ultra-high-speed analyses are possible because there is very low absorption with the advanced end-capping of ***L-column2 ODS, 2μm***.
In the analysis of basic amitriptyline and neutral acenaphthene, the tailing coefficient of amitriptyline is close to 1 and the difference in retention times of these two compounds is less when a low-adsorption column is used. ***L-column2 ODS, 2μm*** is a superior and low-adsorption column because the tailing coefficient is small, at 1.2, and the difference in retention times of the two compounds is small (Fig. 14).

L-column2 ODS	Brand C-6	Brand D-1	Brand E-1	Brand L-1	Brand M-1	Brand N-1
						
P. 3118 psi	5018 psi	4554 psi	4583 psi	2204 psi	3452 psi	3771 psi
t_R (2) 2.402 min	1.927 min	3.684 min	2.989 min	2.086 min	2.520 min	1.948 min
N (2) 8409	8809	6031	6364	6515	5614	6418
T.F. (2) 1.217	1.222	1.607	1.465	1.539	1.556	1.692

[Analytical conditions]
Column: 2.1×50 mm or 2.0×50 mm (C18)
Moble phase: CH_3CN/25 mM Phosphate buffer pH 7.0 (75/25)
Flow rate: 0.4 mL/min; Temp.: 40 °C; Detection: UV 260 nm; Inj.vol.: 0.5 μL

1. Acenaphthene (I.S.)
2. Amitriptyline

P.: Column pressure
N: Number of theoretical plates
t_R: Retention time
T.F.: USP taUSP tailing factor

Fig. 14 Comparison between column (basic compound: amytriptyline).