

6. Effect of Guard Column

Introduction

The use of guard columns to protect both analytical and preparative columns is highly recommended. COSMOSIL guard columns are packed with the identical packing materials as in analytical and preparative columns. As the result, COSMOSIL guard columns do not affect the performance of the main column.

Selection of Guard Column

Use guard column with the identical packing materials as in the analytical and preparative columns. For guard column size, use the same or smaller inner diameter, and short column length (10–50 mm). For more information on the product code or size, please refer to the respective pages of each column.

(e.g., Main column 5C₁₈-MS-II (20 mm I.D. x 250 mm) → Guard column 5C₁₈-MS-II (10 mm I.D. x 20 mm)

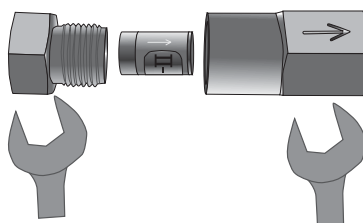
Guard Cartridge

For common size columns (4.6 mm I.D. x 10 mm), guard columns and reasonably priced guard cartridges are both available. Guard cartridges are disposable guard columns with identical packing materials as in analytical columns. When using guard cartridges, a COSMOSIL guard cartridge holder (Product No. 38009-79) is required. The holder is reusable.



COSMOSIL Guard Cartridge Holder (Left)
Guard Cartridge (Right)

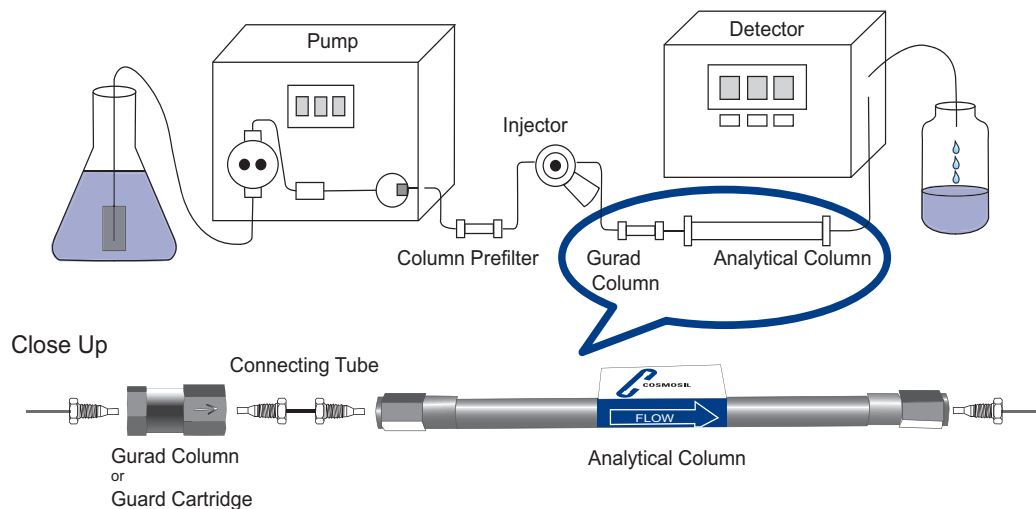
Structure of Cartridge



For more information on how to use the guard cartridge, see the attached instruction manual.

Connection to Guard Column

Use COSMOSIL column connecting tube. (Product No. 37843-69) Please refer to page 87 for more information.



Technical Information

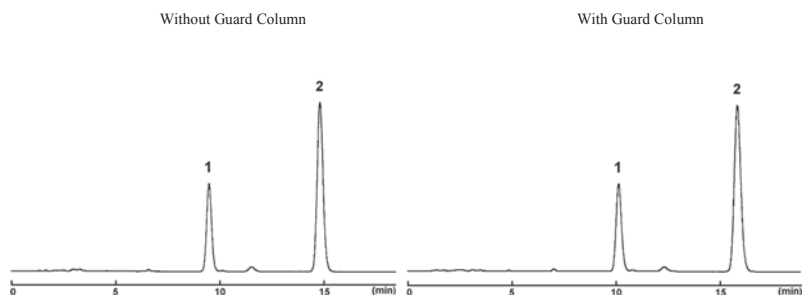
Example of Using Guard Column

The following chromatograms show the use of a COSMOSIL 5C₁₈-MS-II analytical column (4.6 mm I.D. × 150 mm) and the same column connected with its guard column (4.6 mm I.D. × 10 mm). There is no difference in separation characteristics since the packing material is identical in both the guard column and the main column.

Using Guard Column

Column: 5C₁₈-MS-II
Column size: (Analytical Column) 4.6mmI.D.-150mm
(Guard column) 4.6mmI.D.-10mm
Mobile phase: Methanol/ H₂O = 70/30
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV254nm

Sample: 1; Betamethasone 17-Valerate (0.25 μg)
2; Isoamyl Benzoate (2.5 μg)



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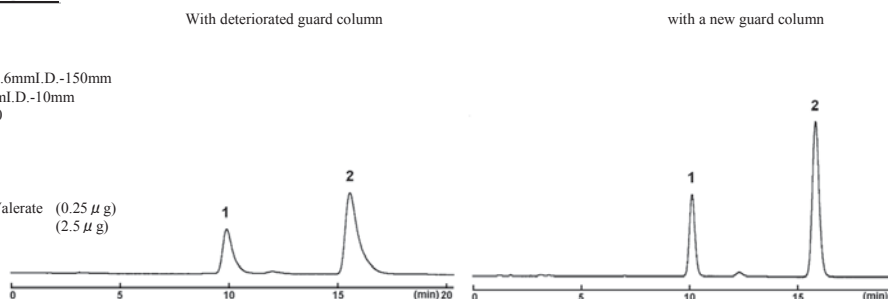
Replacing Guard Column

The following chromatograms show the peak shapes recovered by replacing a deteriorated guard column with a new one. When pressure increases, ghost peak appears, or base line shifts, promptly replace the guard column with a new one. Continued use of a deteriorated guard column can result in premature deterioration of the main column.

Replacing Guard Column

Column: 5C₁₈-MS-II
Column size: (Analytical Column) 4.6mmI.D.-150mm
(Guard column) 4.6mmI.D.-10mm
Mobile phase: Methanol/ H₂O = 70/30
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV254nm

Sample: 1; Betamethasone 17-Valerate (0.25 μg)
2; Isoamyl Benzoate (2.5 μg)



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