

# Avantor® ACE® UHPLC Guards

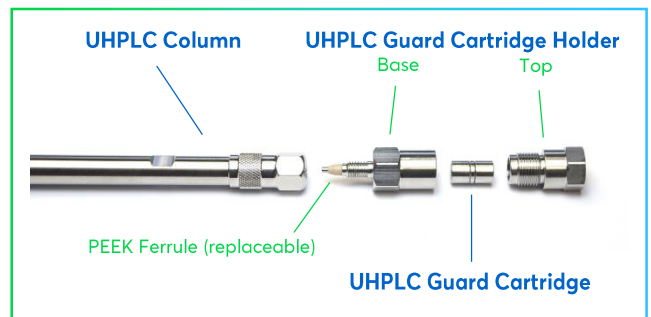
## INTRODUCTION

Guard cartridges are designed to protect UHPLC columns from contamination by sample impurities and irreversibly adsorbed solutes. By attaching a guard to the top of the UHPLC column, contaminants which would otherwise damage the column are trapped on the disposable cartridge. This significantly extends column lifetime without affecting performance or selectivity.

## AVANTOR ACE GUARD TECHNOLOGY

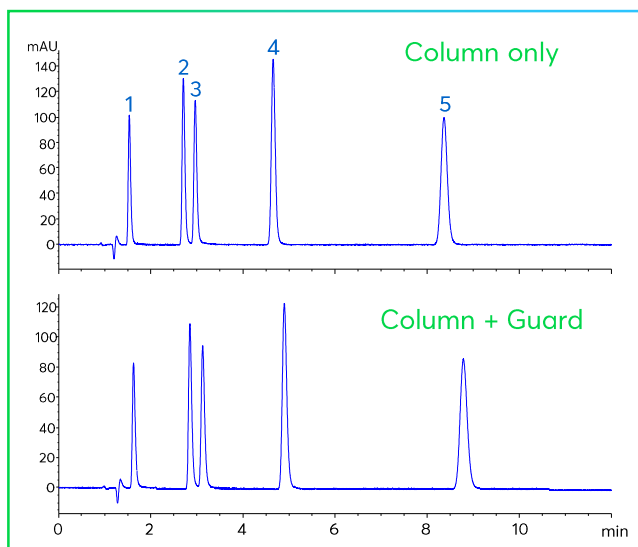
It is recommended that guard cartridges are packed with the same bonded silica phase as the UHPLC column to be protected; this eliminates the possibility of loss of performance or changes in selectivity. Figure 2 shows an ACE Excel 1.7 C18 column with the appropriate UHPLC guard attached. The selectivity and performance of the column is shown to be maintained.

Without column protection, sample impurities can lead to increased back pressure and peak splitting. It is generally recommended that for effective column



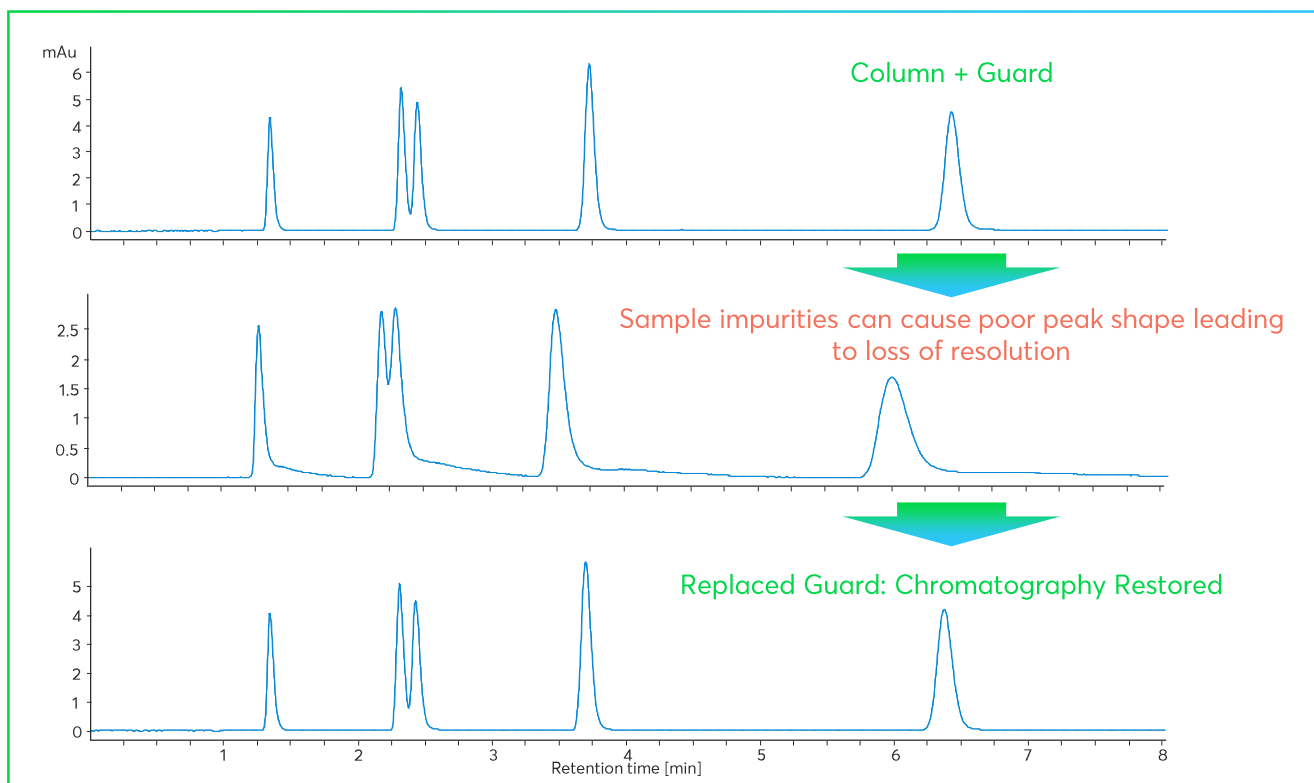
**Figure 1:** Exploded view of the Avantor ACE UHPLC guard system

protection, guard cartridges should be replaced when the column back pressure increases by 10% or the column efficiency decreases by 10%. Figure 3 shows the loss of efficiency and peak shape due to sample impurities and the subsequent restoration by replacing the guard cartridge.



**Figure 2:** Comparison of chromatography for a preservatives separation with and without a guard attached to the column.

<b>Column</b>	ACE Excel 1.7 C18, 100 x 2.1 mm
<b>Guard</b>	ACE C18, 5 x 2.1 mm
<b>Mobile Phase</b>	20 mM $\text{KH}_2\text{PO}_4$ pH 2.7 in MeCN/ $\text{H}_2\text{O}$ 35:65 v/v
<b>Flow Rate</b>	0.21 mL/min
<b>Sample</b>	1. 4-Hydroxybenzoic acid, 2. Sorbic acid, 3. Methylparaben, 4. Ethylparaben, 5. Propylparaben.



**Figure 3:** Using a guard can prevent having to replace expensive UHPLC columns.