

# Technical Note

## Manufacturing - Column Reproducibility

### Introduction

Precious time and effort is devoted to method development and so it is essential that when a new column is purchased it performs in exactly the same way as the column(s) the method was developed on even if this is years later. Fortis Technologies pride themselves on stringent manufacturing controls which ensure reproducible products time after time.

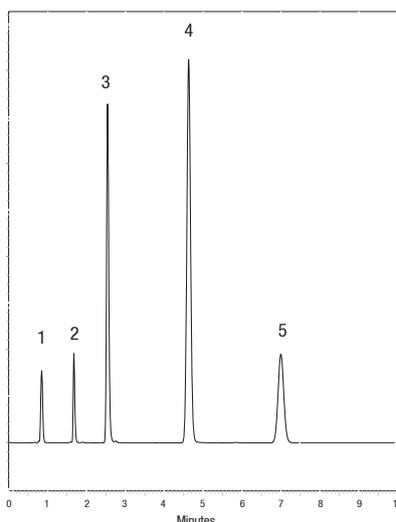
“Reproducible columns are possibly the most important choice in new HPLC method development”

### Quality Control

Many parameters are measured to ensure that Fortis™ particles are consistently of the highest quality. Particle size, surface area, porosity, carbon loading, metals are all routinely tested but at the end of the day the ultimate test for chromatographic media is to use it for chromatography.

### QC HPLC Analysis

The quality control test that Fortis Technologies use to measure each individual columns performance is designed to be particularly stringent and is the toughest test in the industry. The mobile phase contains no buffers, neutral species are employed as efficiency markers and two basic probes are used to interrogate the particle surface thoroughly and expose effects of residual silanol groups.



Column : Fortis™ C18  
 Mobile phase : 60:40 ACN:H2O  
 Gradient : Isocratic  
 Temp : 25oC  
 Detection : UV 254nm

1. Uracil
2. Phenol
3. 4-Ethylaniline
4. N,N-Dimethylaniline
5. Napthalene

### Discussion

The basic analytes 4-ethylaniline (3) and N,N-Dimethylaniline (4) are severely affected by residual silanol activity. In particular acidic silanols and metal activated silanols would result in tailing peaks if they could interact with these probes. As Fortis silica is ultra pure there are minimal acidic or metal activated silanols groups to distort the peak shape of these probes. The homogeneous silica surface allows the bonded ligands to be densely packed as well as uniformly spaced. This results in a reproducible, highly efficient, hydrophobic bonded phase giving the best chromatographic performance. Fortis Technologies are so confident about the quality of manufacture that our specification for peak shape is 20% lower than other manufactureres.

Fortis™ particles are available in 1.7, 2.5, 3, 5, and 10µm sizes so that methods are fully scaleable from UHPLC and Analytical HPLC to preparative HPLC.

