

Chemical stability

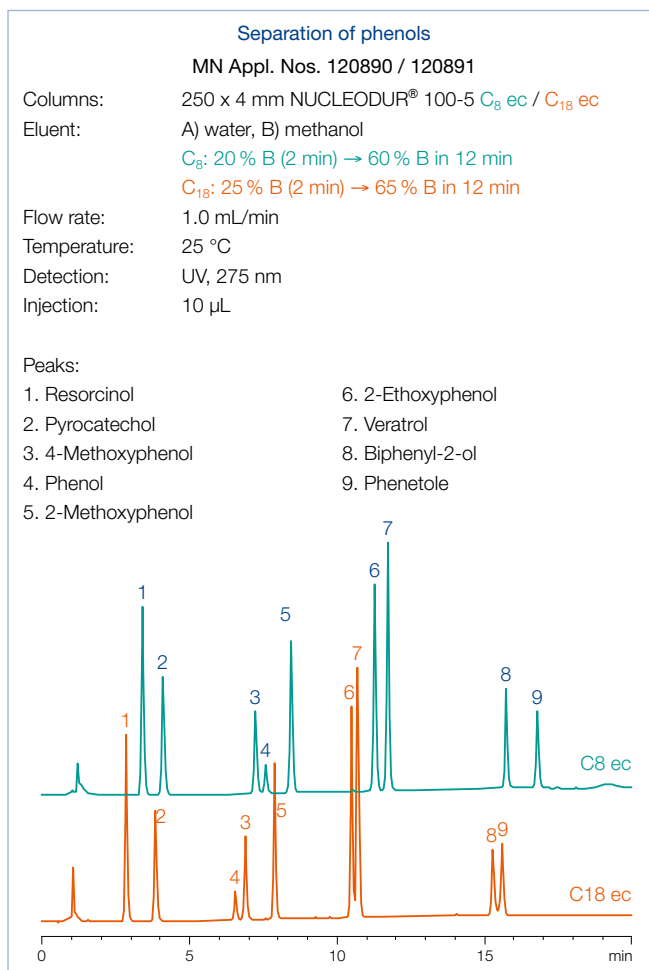
The utmost purity of the base silica and the exceptional silane bonding chemistry minimize the risk of dissolution, or hydrolysis at pH extremes.

The chromatograms show the retention behavior at pH values of 1.5 and 10.0 for NUCLEODUR® 100-5 C₁₈ ec.

NUCLEODUR® octyl phases

In addition to NUCLEODUR® C₁₈ phases MACHEREY-NAGEL offers octyl modified NUCLEODUR® C₈ Gravity and NUCLEODUR® C₈ ec columns to expand the RP tool box. Based on the same spherical high purity silica the C₈ phases exhibit the same chemical and mechanical stability as the C₁₈ counterparts. Indeed NUCLEODUR® C₈ Gravity can also be run at pH extremes (pH 1 – 11) by choosing appropriate elution parameters. Due to the shorter chain and less hydrophobic properties of the stationary phase the retention of non-polar compounds is decreased, and in consequence a reduction in time of analysis can be achieved. Moreover a stronger polar selectivity, particularly with the separation of ionizable analytes is frequently observed (as distinct from the C₁₈ phases). NUCLEODUR® C₈ ec and NUCLEODUR® C₈ Gravity are most suitable for the development of new methods but also for robust routine analyses.

There are no general guidelines which could make the choice between C₈ and C₁₈ phases easier but it will always be beneficial to add both phases to the existing pool of RP columns in the laboratory. Comparative studies reveal some different selectivity patterns of NUCLEODUR® C₈ ec and C₁₈ ec. The separation of phenols at right shows baseline separation for 2-ethoxyphenol and dimethoxybenzene (veratrol) and in addition a reversal of the elution order of phenol and 4-methoxyphenol can be shown on the octyl phase.



NUCLEODUR® phases for biochromatography

A description and applications for C₁₈ and C₄ modified 300 Å NUCLEODUR® widepore materials for the separation of biopolymers, like peptides and proteins can be found in chapter “HPLC column for biochemical separations” (see page 244).

C₁₈ or C₈ · the best of both worlds

- Octyl phases (C₈) show superior polar selectivity.
- Octadecyl phases (C₁₈) show superior hydrophobic selectivity.
- Hydrophobic compounds show shorter retention times on C₈ phases.

Eluent in column acetonitrile – water

ID	Length → 50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
NUCLEODUR® 100-3 C ₁₈ ec; octadecyl phase, particle size 3 µm, 17.5 % C						
Analytical EC columns						
	2 mm	760050.20	760054.20	760051.20	760053.20	760052.20
	3 mm	760050.30	760054.30	760051.30	760053.30	760052.30
	4 mm	760050.40	760054.40	760051.40	760053.40	760052.40
	4.6 mm	760050.46	760046.46	760054.46	760053.46	760052.46
EC guard columns*		4 x 2 mm: 761931.20		4 x 3 mm: 761931.30		