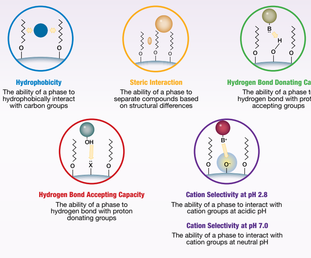
Expand Your LC Selectivity Toolbox

Primary Selectivity Mechanisms



Hydrophobicity
The ability of a phase to hydrophobically interact with carbon groups

Steric Interaction
The ability of a phase to separate compounds based on structural differences

Hydrogen Bond Donating Capacity
The ability of a phase to hydrogen bond with proton accepting groups

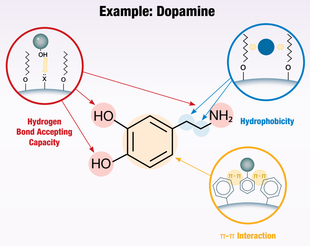
Hydrogen Bond Accepting Capacity
The ability of a phase to hydrogen bond with proton donating groups

Cation Selectivity at pH 2.8
The ability of a phase to interact with cation groups at acidic pH

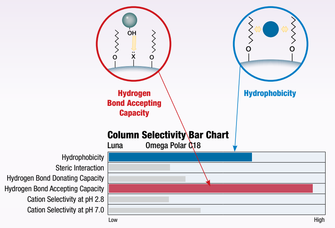
Cation Selectivity at pH 7.0
The ability of a phase to interact with cation groups at neutral pH

Define the Characteristics of Your Target Compounds

Example: Dopamine

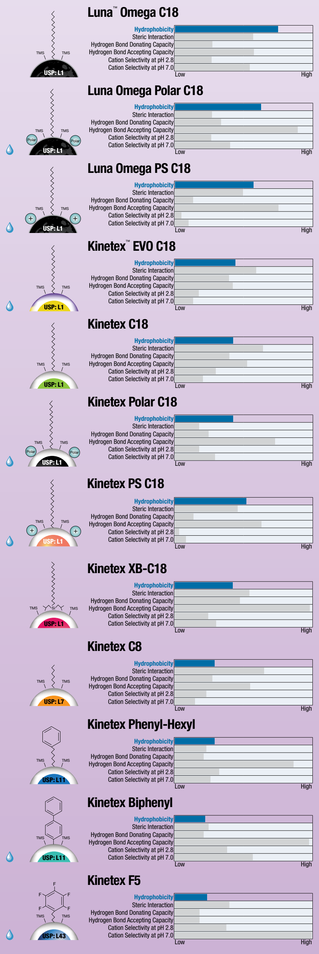


Optimizing column selectivity with analyte chemistry



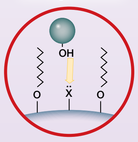
Hydrophobic Compounds

Hydrophobicity
The ability of a phase to hydrophobically interact with carbon groups

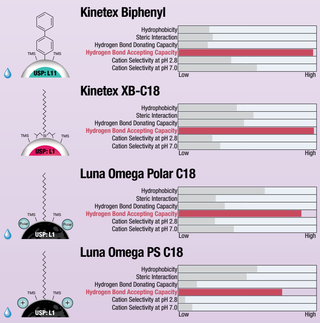


Water droplet denotes stationary phases that are 100% aqueous stable

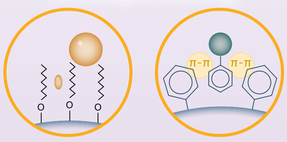
Hydroxyl- or Amine-containing Compounds



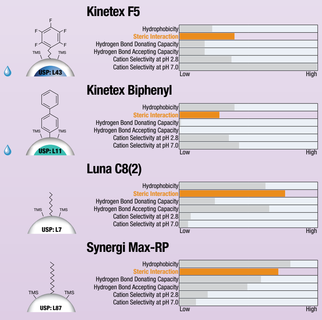
Hydrogen Bond Accepting Capacity
The ability of a phase to hydrogen bond with proton donating groups



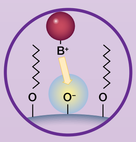
Isomers, Isobaric Compounds, and Shape Selectivity



π-π and Steric Interactions
The ability of a phase to separate compounds based on structural differences

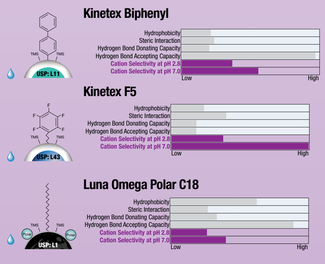


Polar Basic Compounds

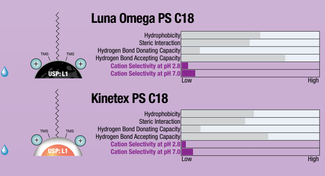


Cation Selectivity
The ability of a phase to interact with cation groups at acidic or basic pH

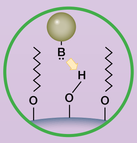
Increased Retention of Polar Bases



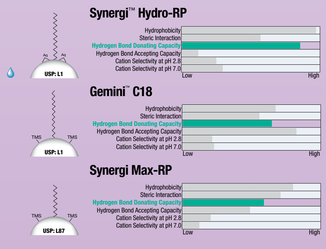
Improved Peak Shape for Bases



Non-ionized Bases and Oxygen- or Halogen-containing Compounds



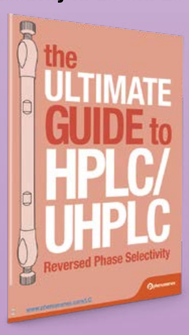
Hydrogen Bond Donating Capacity
The ability of a phase to hydrogen bond with proton accepting groups



Protect Your Column's Selectivity!

To learn more, visit:
www.phenomenex.com/SecurityGuardULTRA

For more information, please check The Selectivity HPLC/UHPLC Guide



Material Characteristics

Packing Material	Particle Sizes (µm)	Pore Size (Å)	Effective Surface Area (m^2/g)	Effective Carbon Load (%)	pH Range	Pressure Stability (bar)
Kinetex Phases						
Kinetex Polar C18	2.6	100	200	9	1.5 – 8.5*	1,000/600**
Kinetex PS C18	2.6	100	200	9	1.5 – 8.5*	1,000/600**
Kinetex C18	1.3, 1.7, 2.6, 5	100	200	12	1.5 – 8.5*	1,000/600**
Kinetex EVO C18	1.7, 2.6, 5	100	200	11	1.5 – 12	1,000/600**
Kinetex XB-C18	1.7, 2.6, 3.5, 5	100	200	10	1.5 – 8.5*	1,000/600**
Kinetex C8	1.7, 2.6, 5	100	200	8	1.5 – 8.5*	1,000/600**
Kinetex Biphenyl	1.7, 2.6, 5	100	200	11	1.5 – 8.5*	1,000/600**
Kinetex Phenyl-Hexyl	1.7, 2.6, 5	100	200	11	1.5 – 8.5*	1,000/600**
Kinetex F5	1.7, 2.6, 5	100	200	9	1.5 – 8.5*	1,000/600**
Luna Phases						
Luna Omega Polar C18	1.6, 3, 5	100	260	9	1.5 – 8.5*	1,034/600***
Luna Omega PS C18	1.6, 3, 5	100	260	9	1.5 – 8.5*	1,034/600***
Luna Omega C18	1.6, 3, 5	100	260	11	1.5 – 8.5*	1,034/600***

* pH stability under gradient conditions. pH stability is 1.5 – 10 under isocratic conditions.
** 2.1 mm ID Kinetex columns are pressure stable up to 1,000 bar.
*** 1.6 µm Luna Omega columns are pressure stable up to 1,034 bar and 3 or 5 µm are stable up to 600 bar.
When using Kinetex 1.3 µm or 1.7 µm, increased performance can be achieved, however high pressure-capable instrumentation is required.

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KINETEX Core-Shell Technology

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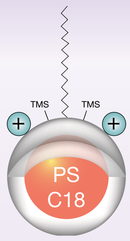
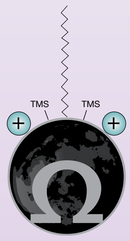
Polar Bases



Kinetex PS C18
2.6 µm

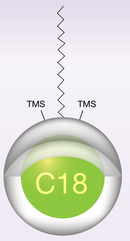
A multi-modal C18 column with a unique positive surface modification that demonstrates unique selectivity and improved peak shape for basic compounds.



Luna Omega PS C18
1.6, 3, 5 µm

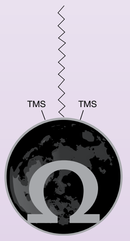
Unique, 100 % aqueous stable mixed-mode phase that provides both polar and non-polar retention. The surface contains a positive charged ligand which aids in the retention of acidic compounds through ionic interactions, while the C18 ligand promotes general reversed phase retention. The positively charged surface also improves basic compound peaks shape through ionic repulsion.

Hydrophobic Compounds



Kinetex C18
1.3, 1.7, 2.6, 5 µm

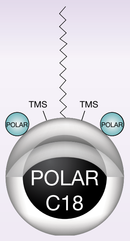
Balanced C18 phase that provides the highest degree of hydrophobic selectivity relative to other Kinetex phases.



Luna Omega C18
1.6, 3, 5 µm

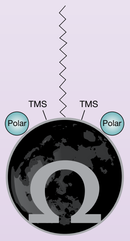
Rugged and highly efficient C18 with strong focus on hydrophobic retention of non-polar and polar Luna compounds

Polar Acids



Kinetex Polar C18
2.6 µm

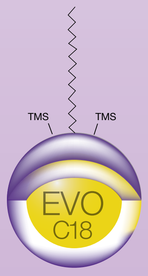
Combined C18 and a polar modified surface that provides polar and non-polar retention alongside 100 % aqueous stability.



Luna Omega Polar C18
1.6, 3, 5 µm

100 % aqueous stability and enhanced selectivity/ retention for polar analytes without diminishing useful non-polar retention. The C18 ligand provides general hydrophobic interactions while a polar modified particle surface provides enhanced polar compound retention.

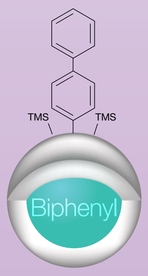
Alkaline Conditions



Kinetex EVO C18
1.7, 2.6, 5 µm

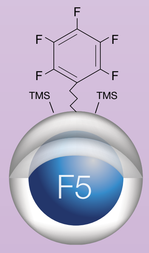
Novel pH 1-12 stable C18 that delivers robust methods and improved peak shape for bases.

Closely Related Compounds



Kinetex Biphenyl
1.7, 2.6, 5 µm

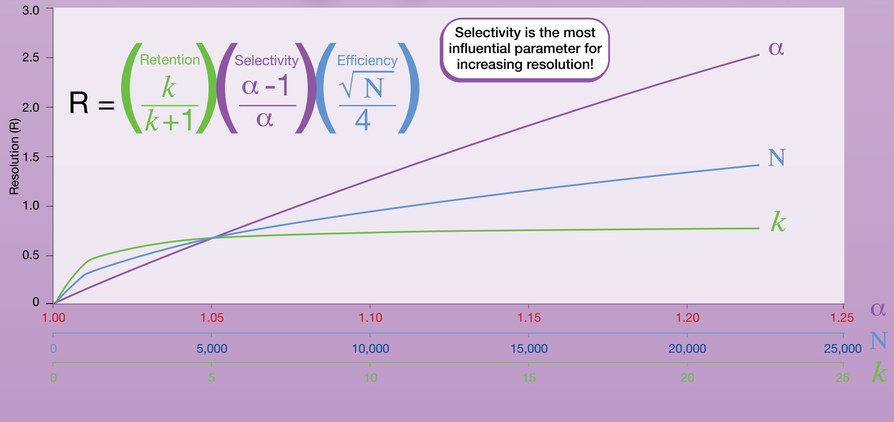
100 % aqueous stable reversed phase chemistry with hydrophobic, aromatic, and enhanced polar selectivity.



Kinetex F5
1.7, 2.6, 5 µm

Highly reproducible pentafluoro-phenylpropyl phase, exceptional for halogenated, conjugated, isomeric, or highly polar compounds.

How to Impact Chromatographic Resolution



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