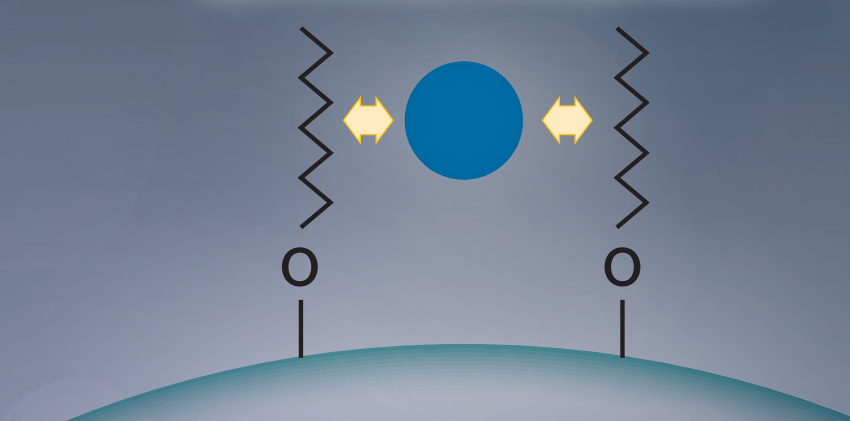


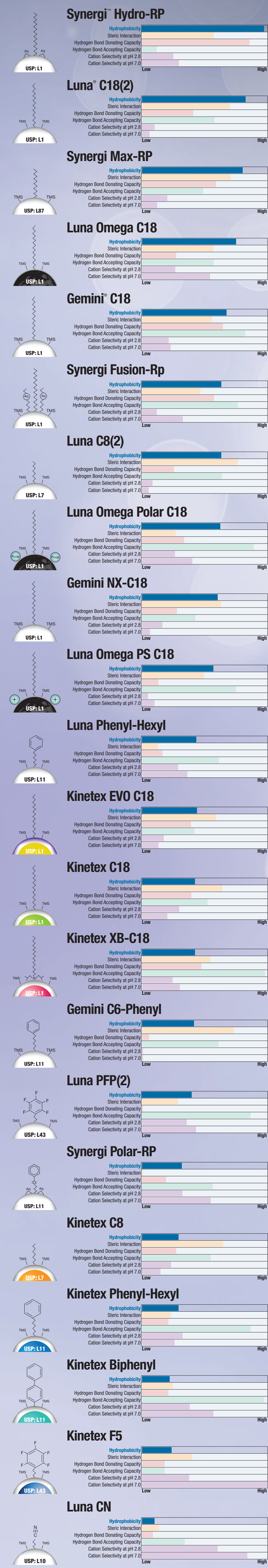
# The Ultimate Guide to Reversed Phase HPLC/UHPLC Selectivity

## Hydrocarbon Compounds

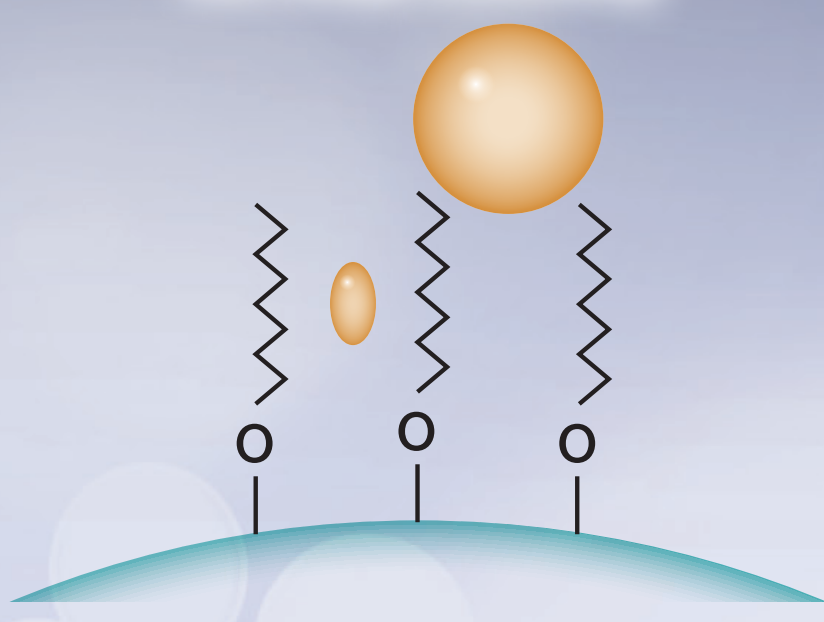


### Hydrophobicity

High column hydrophobicity values indicate greater retention of carbon-containing analytes.



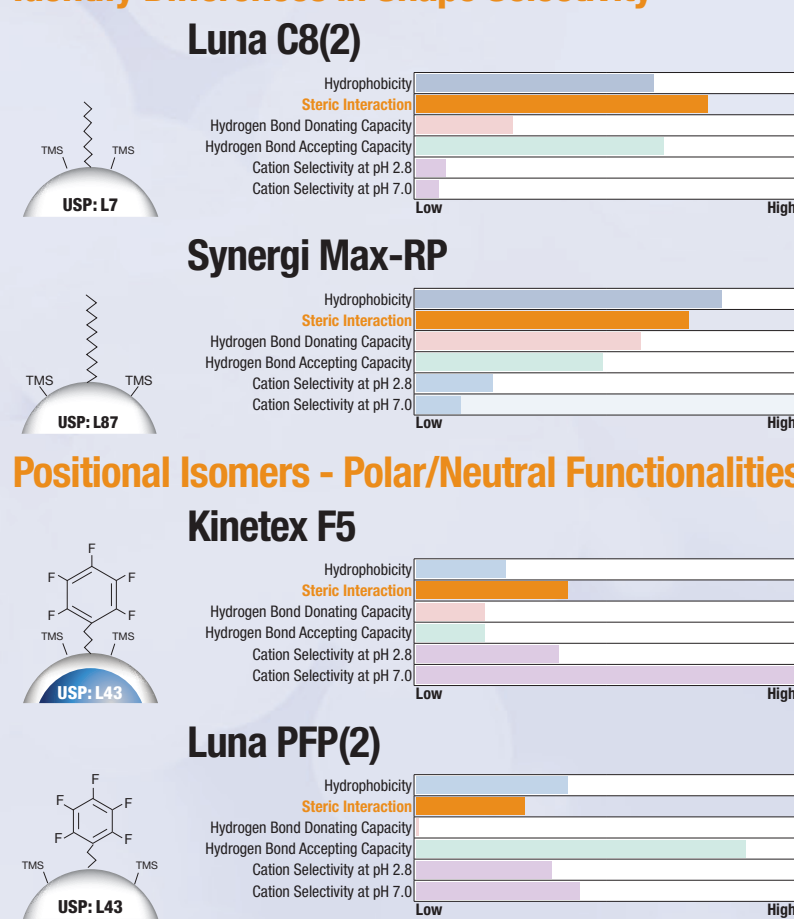
## Isomers, Isobaric Compounds, and Shape Selectivity



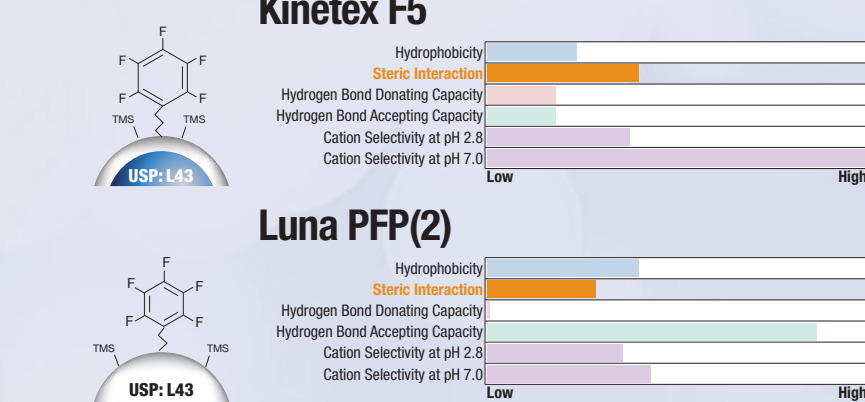
### Steric Interactions

High column steric interaction values are best suited for the analysis of analytes that require separation based on size and shape differences.

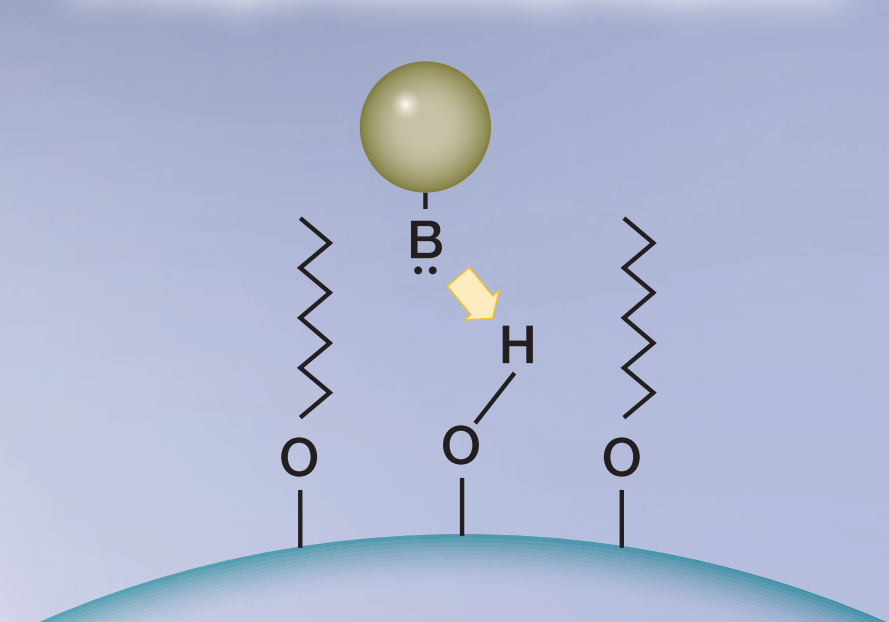
#### Identify Differences in Shape Selectivity



#### Positional Isomers - Polar/Neutral Functionalities

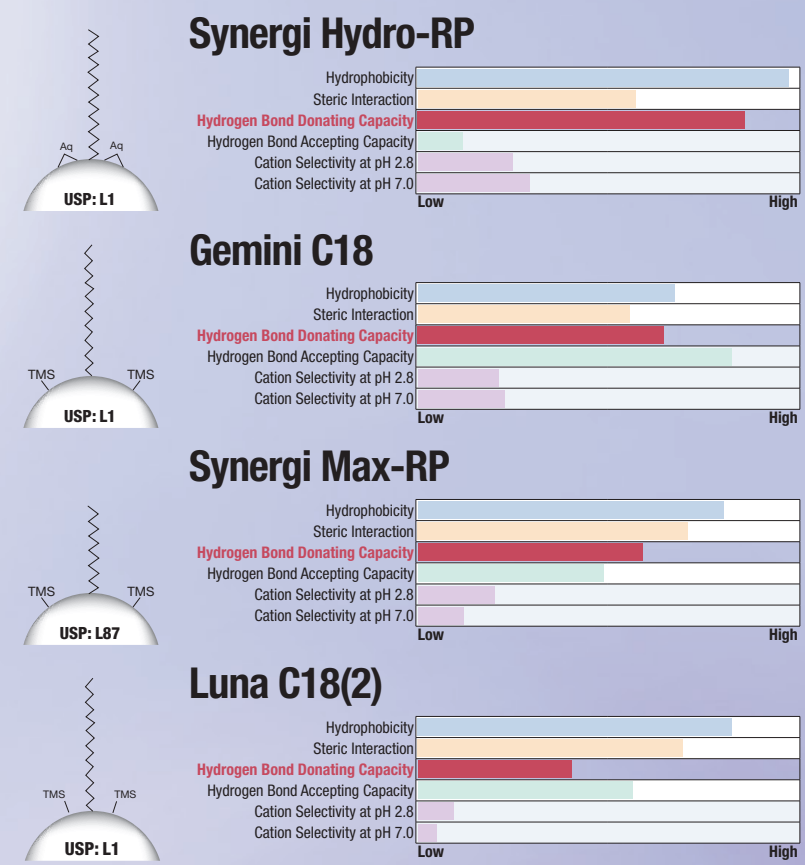


## Non-ionized Bases and Oxygen- or Halogen-containing Compounds

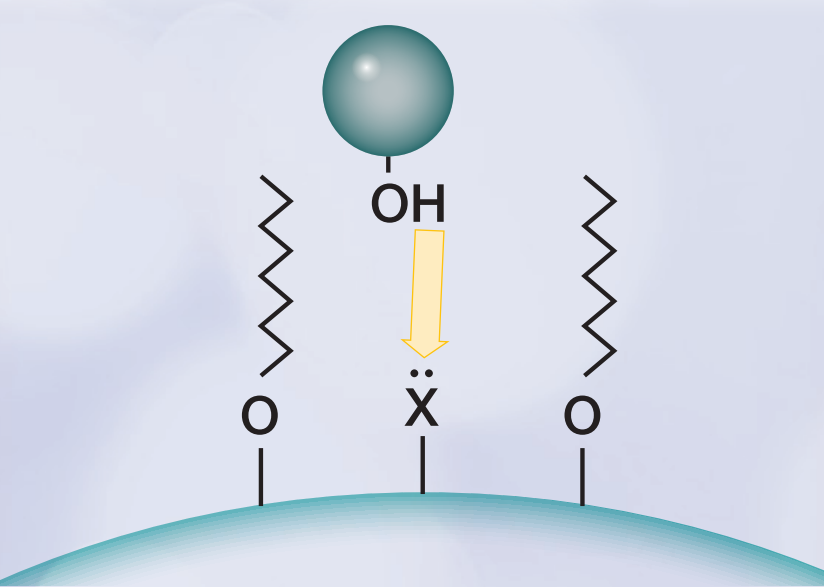


### Hydrogen Bond Donating Capacity

Hydrogen bond donating groups on the silica surface interact with accessible functionalities containing a lone pair of electrons.

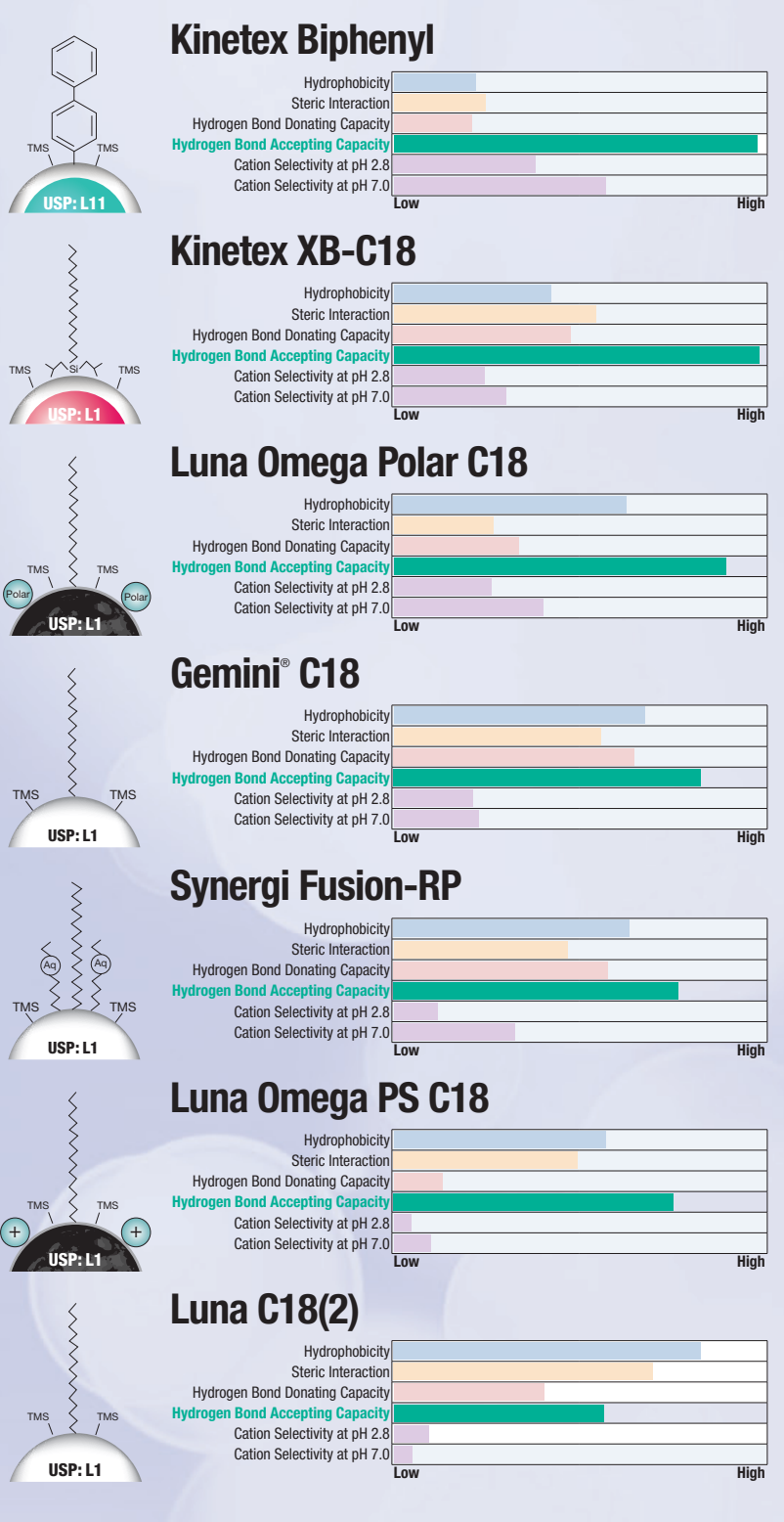


## Hydroxyl- or Amine-containing Functionalities

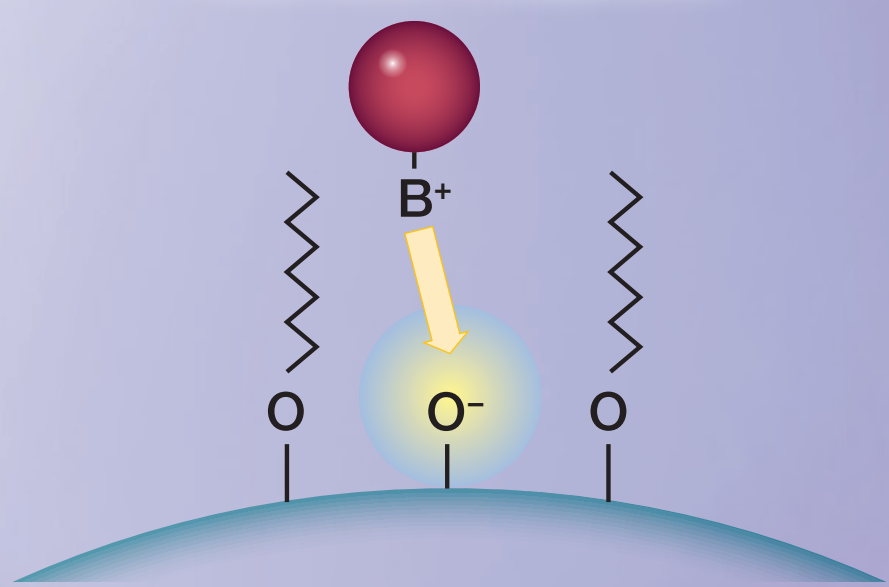


### Hydrogen Bond Accepting Capacity

Hydrogen bond accepting groups on the silica surface interact with hydrogen bond donating functionalities on analytes.



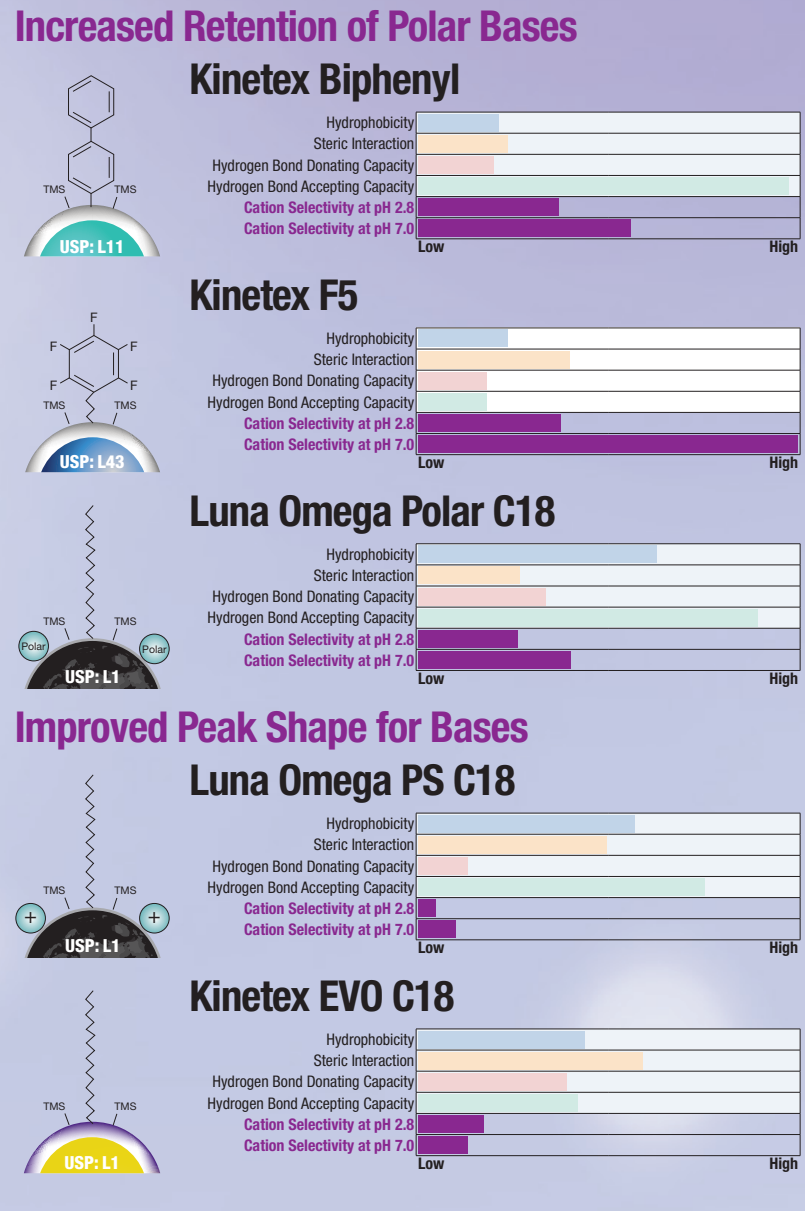
## Polar Basic Compounds



### Cation Selectivity

High column cation selectivity values will show higher retention for ionized bases.

Low column cation selectivity values will have less interaction and retention for ionized bases, but may have very good peak shape.



### Important!

Only column selectivity parameters of the same class (i.e. Steric Interactions) may be compared between the columns featured here. Hydrophobic selectivity is the main mechanism of retention under reversed phase conditions. Within the column profiles the 5 different selectivity parameter classes are not on the same scale.

#### Which solid support is right for your analysis?

**Performance Gains on ANY HPLC or UHPLC System**

**Core-Shell Particles**

- Ultra-high efficiency at decreased backpressure (2.6µm)
- 3 µm or better efficiencies at 5 µm pressures (5 µm)
- Easy method transfer between HPLC and UHPLC systems
- Highest efficiencies on UHPLC systems (1.3 µm and 1.7 µm)

#### Extensive Selection for Increased Retention

**Fully Porous Particles**

- Increased loadability due to higher surface area
- Excellent mechanical strength
- Large range of scalable particle sizes and selectivities

#### Additional Selection Tips

| Polar Acids                                                         | Alkaline Mobile Phases (pH 8-12)                                                                                                       | Aromatic Compounds                                                                                          | Synthetic Oligonucleotides                                                                   | Proteins (>10 kDa)                                                                                                               | Peptides (≤10 kDa)                                                                                                         | Chiral Compounds                                                                                                                                         |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Luna Omega PS C18</li> </ul> | <ul style="list-style-type: none"> <li>Kinetex EVO C18</li> <li>Gemini NX-C18</li> <li>Gemini C18</li> <li>Gemini C6-Phenyl</li> </ul> | <ul style="list-style-type: none"> <li>Kinetex F5</li> <li>Kinetex Biphenyl</li> <li>Luna PFP(2)</li> </ul> | <ul style="list-style-type: none"> <li>Clarity Oligo-XT</li> <li>Clarity Oligo-RP</li> </ul> | <ul style="list-style-type: none"> <li>Aeris WIDEPORE XB-C18</li> <li>Aeris WIDEPORE XB-C8</li> <li>Aeris WIDEPORE C4</li> </ul> | <ul style="list-style-type: none"> <li>Aeris PEPTIDE XB-C18</li> <li>Luna Omega PS C18</li> <li>Kinetex EVO C18</li> </ul> | <ul style="list-style-type: none"> <li>Lux<sup>®</sup> Amylose-1</li> <li>Lux Cellulose-1</li> <li>Lux Cellulose-4</li> <li>Lux i-Cellulose-5</li> </ul> |

