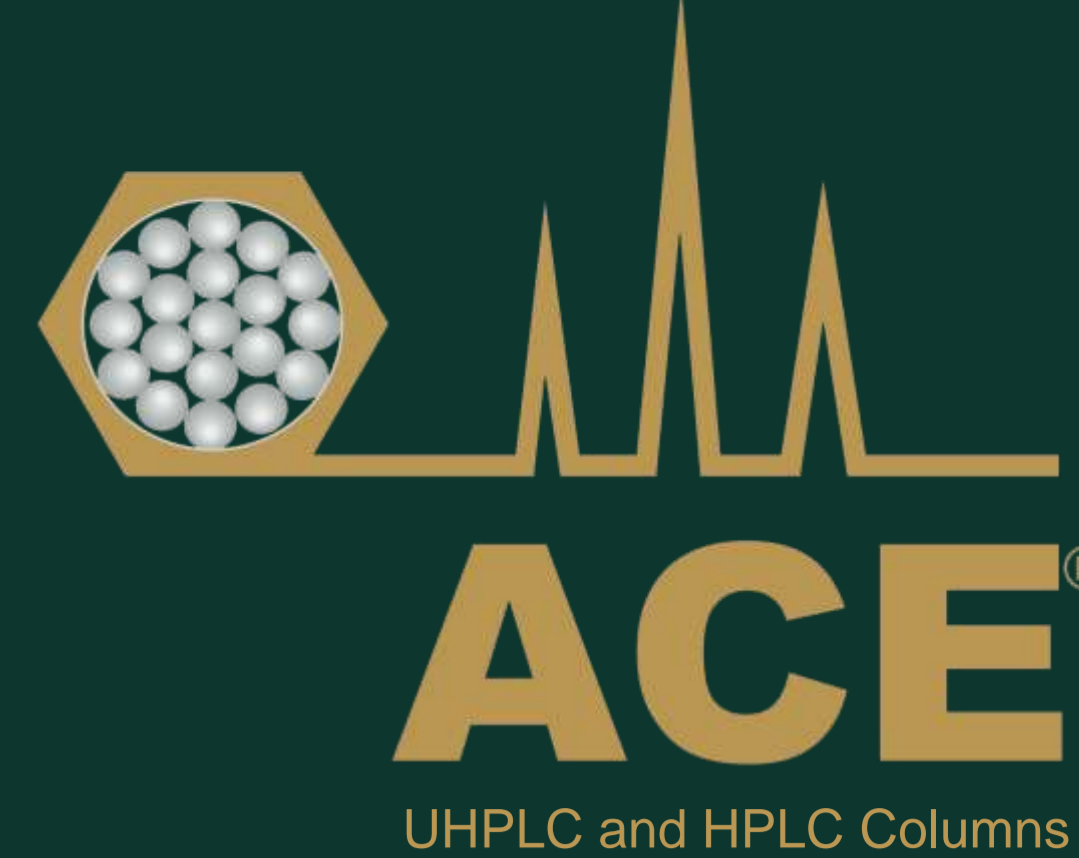


Exploring The Power Of Chromatographic Selectivity For Polar And Non-Polar Analytes With ACE[®] A Unique UHPLC / HPLC Polar Embedded Phase



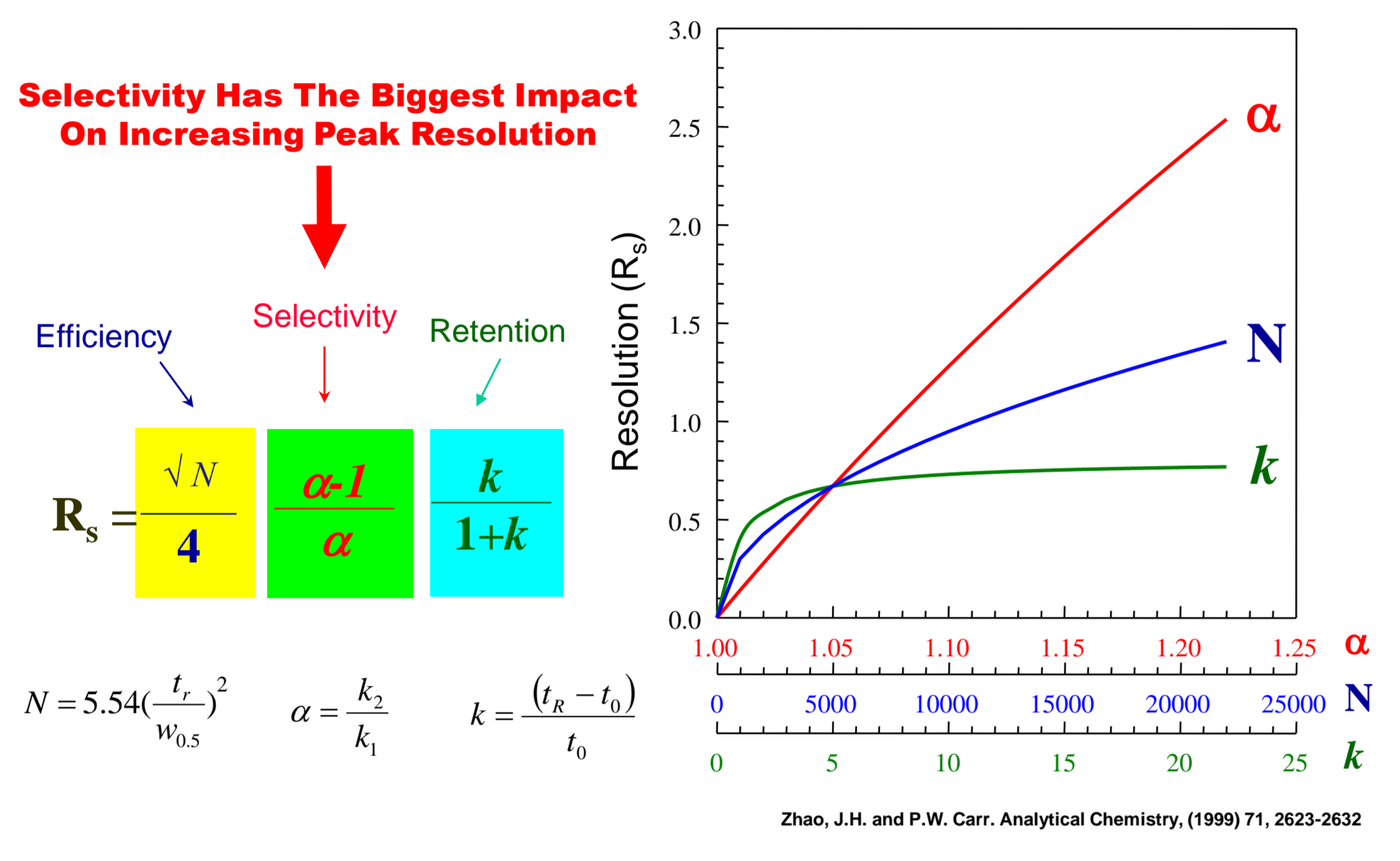
Geoffrey Faden¹, Alan P McKeown²

¹MACMOD Analytical Inc., 103 Commons Court, PO Box 587, Chadds Ford, PA 19317 USA ²Advanced Chromatography Technologies Ltd, 1 Berry Street, Aberdeen, Scotland, AB25 1HF UK

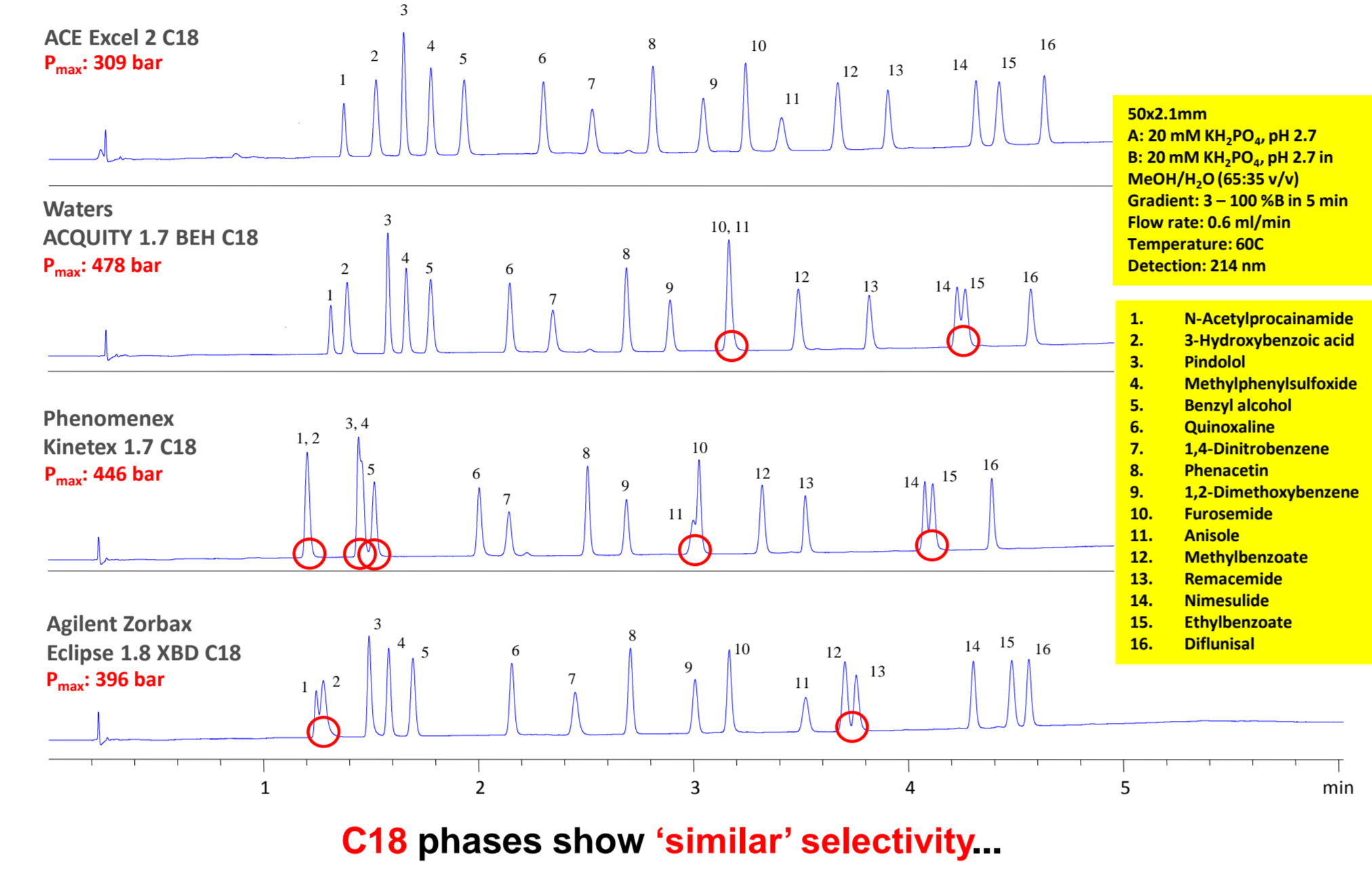
THE CHALLENGE

Engineer a new, unique HPLC / UHPLC phase with polar retention / resolution and alternative selectivity that is reproducible, robust and gives efficient chromatography

1. RESOLUTION, SELECTIVITY, EFFICIENCY & RETENTION



2. C18 STATIONARY PHASES SHOW SIMILAR SELECTIVITY



3. ACE[®] C18-Amide[™]: A NEW POLAR EMBEDDED PHASE OPTION

Uniquely designed ligand (USP L60)
- Maximise stability and multiple modes of interaction

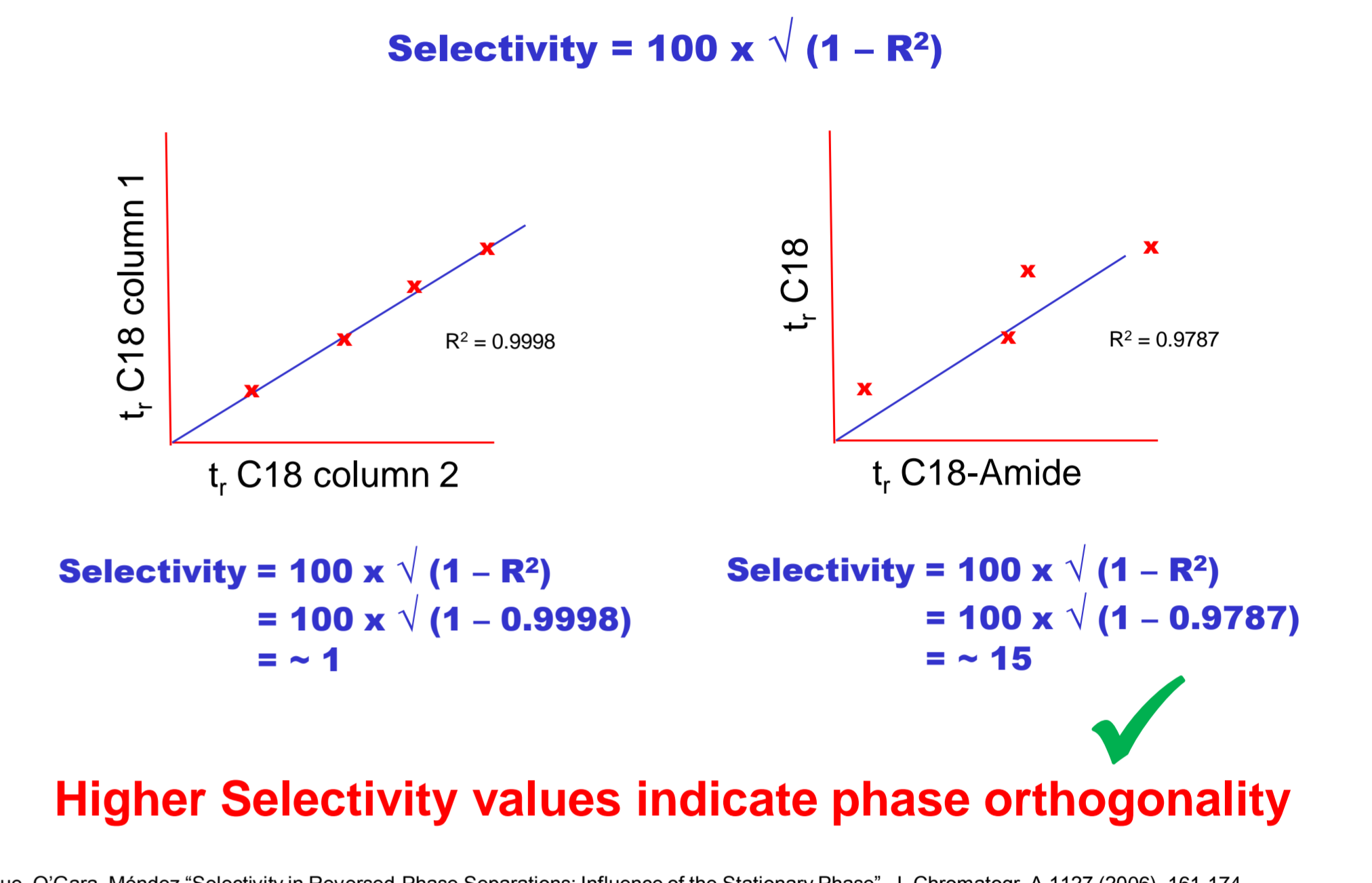
Extended spacer gives improved stability

Amide polar embedded group

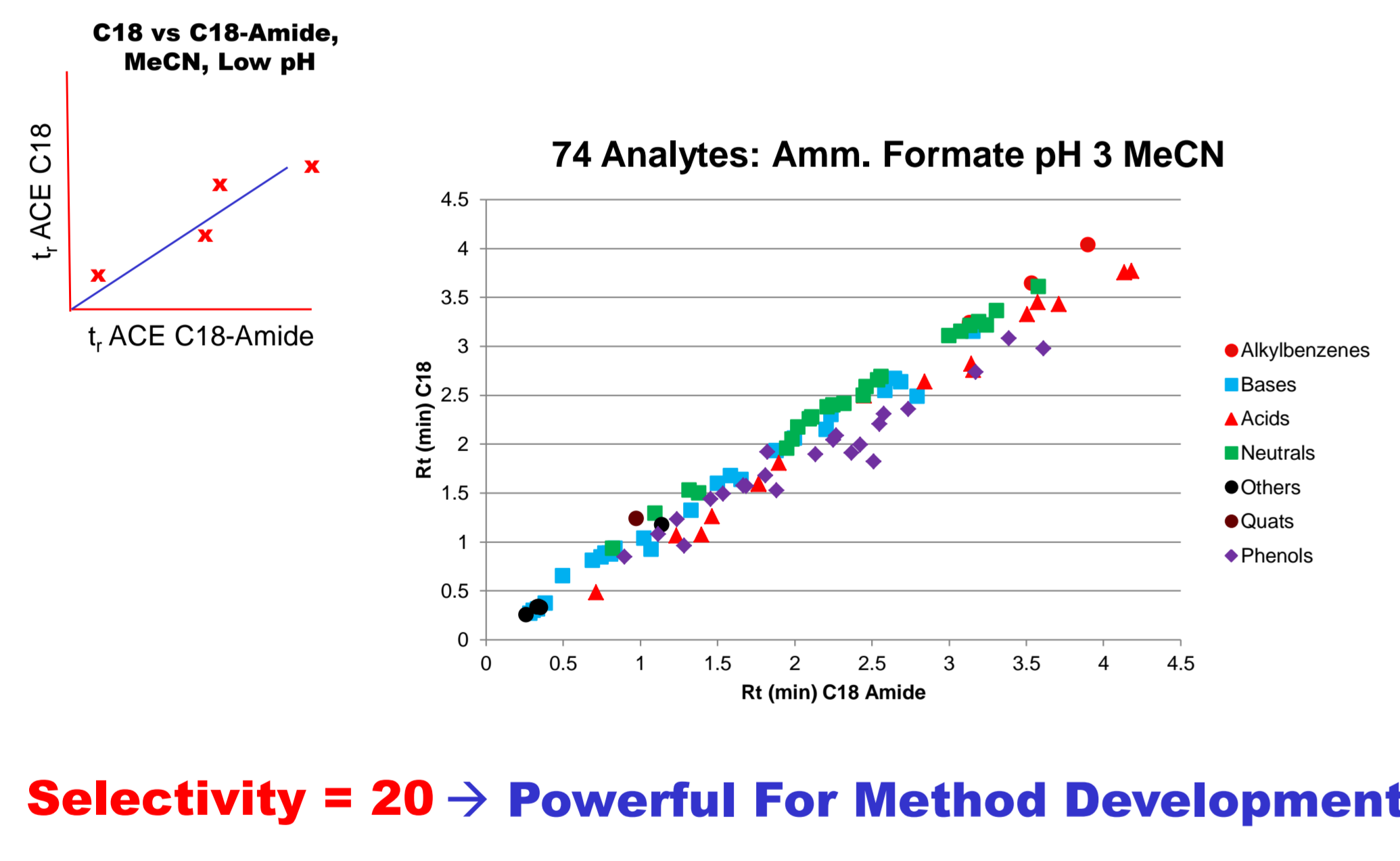
Ultra-pure ACE Silica particle

- Enhanced retention / resolution of polar acidic analytes - Ideal for H-bond donor analytes: acids, amino, amides etc
- Enhanced retention and resolution for phenolics - Wine acids, green teas, hydroxylated / polar analytes etc
- Usable in 100% aqueous eluents: no dewetting

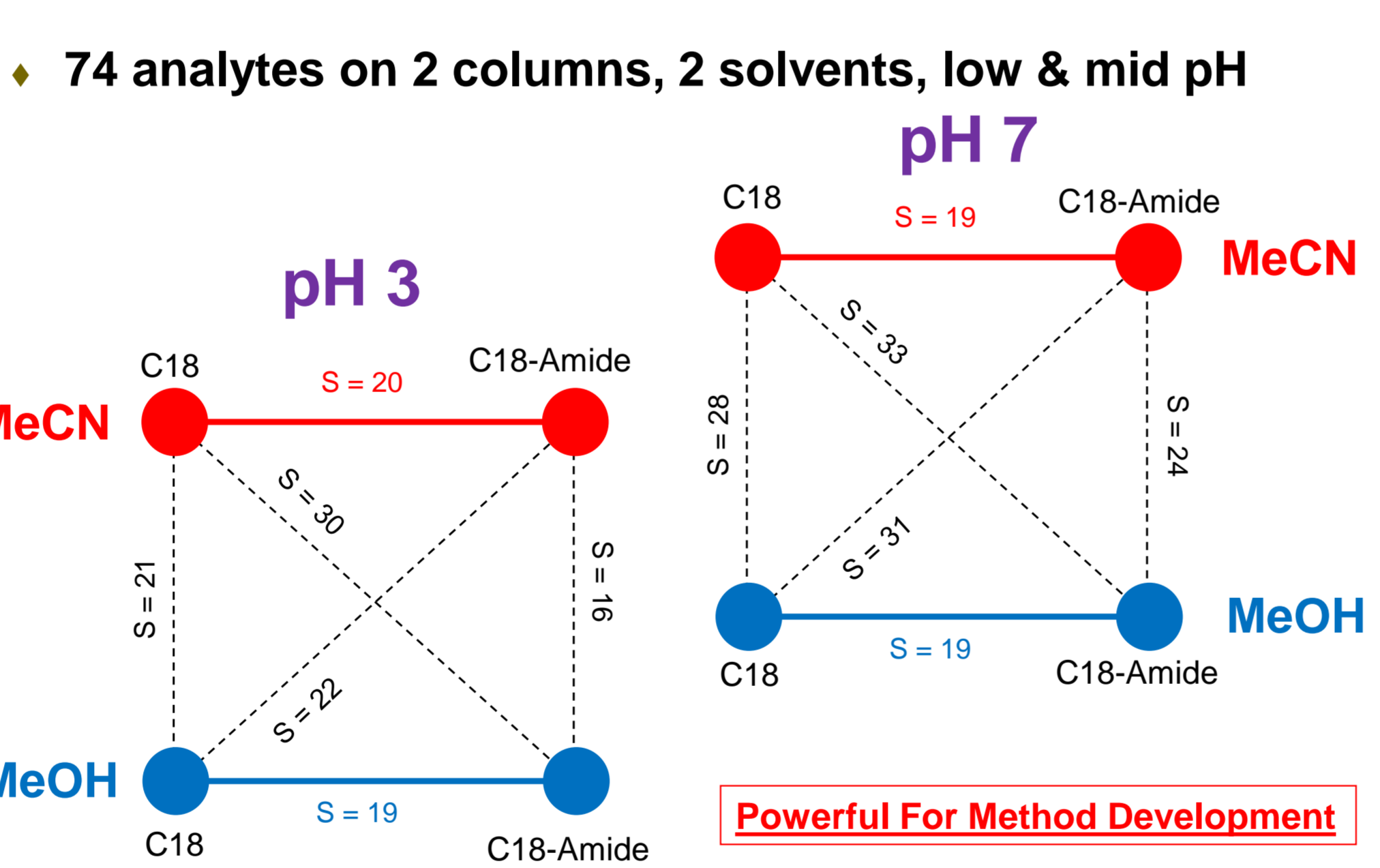
4. DETERMINING SELECTIVITY VALUES* FOR PHASES



5. ACE[®] C18-Amide[™] EXCELLENT POLAR SELECTIVITY



6. POLAR SELECTIVITY INCLUDING LOW & MID pH EFFECTS



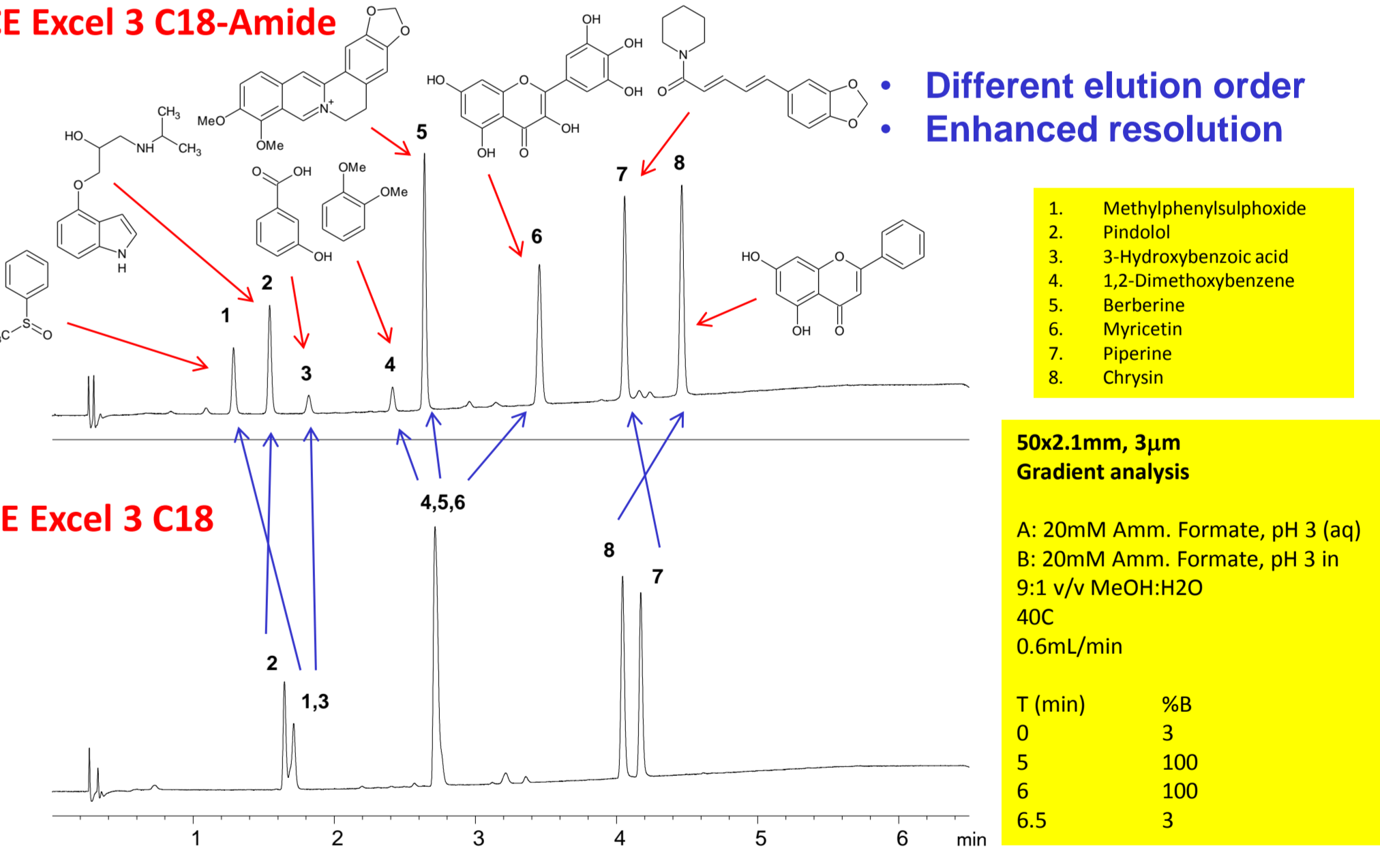
7. EMBEDDED PHASE STABILITY AT LOW & MID pH

Real time stability data collected on retention and efficiency (acidic, neutral, basic analytes):

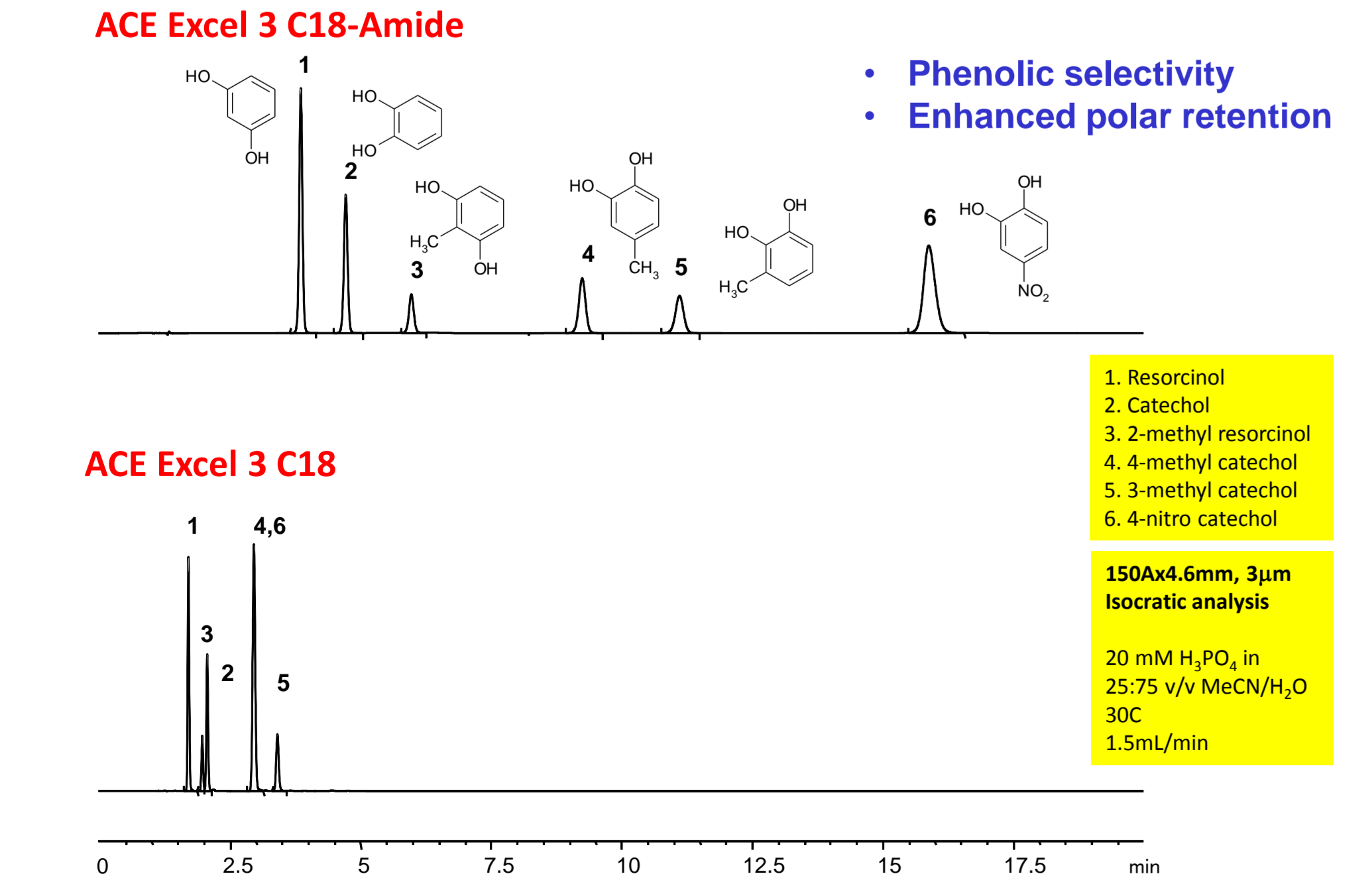
- 20,000 column volumes @ 60C / pH 2.5 (phosphate)
- 20,000 column volumes @ 60C / pH 7.0 (phosphate)

Equates to > 60 days of use (8hrs use per day)

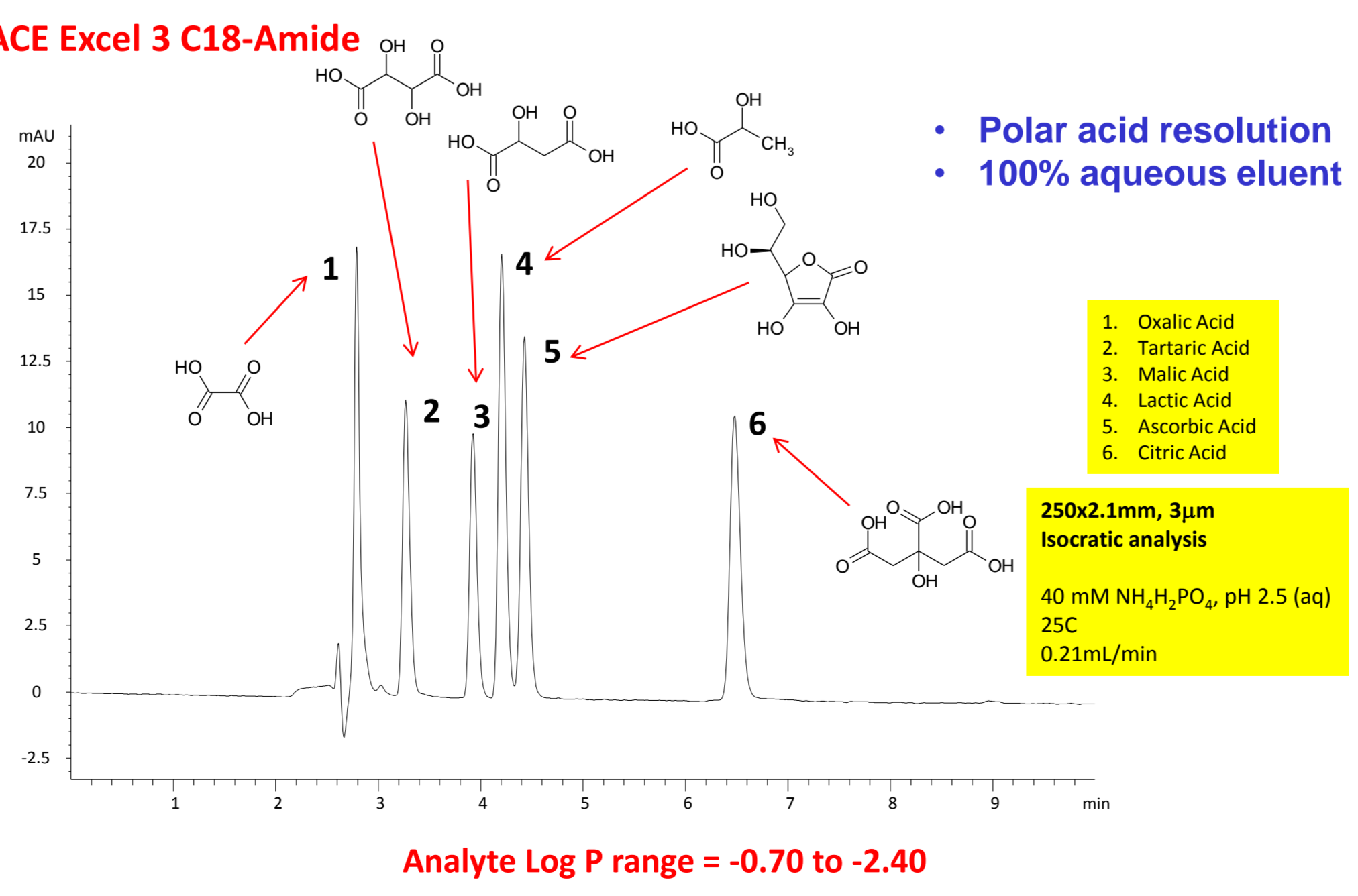
8. METHOD DEVELOPMENT: ALTERNATE POLAR SELECTIVITY



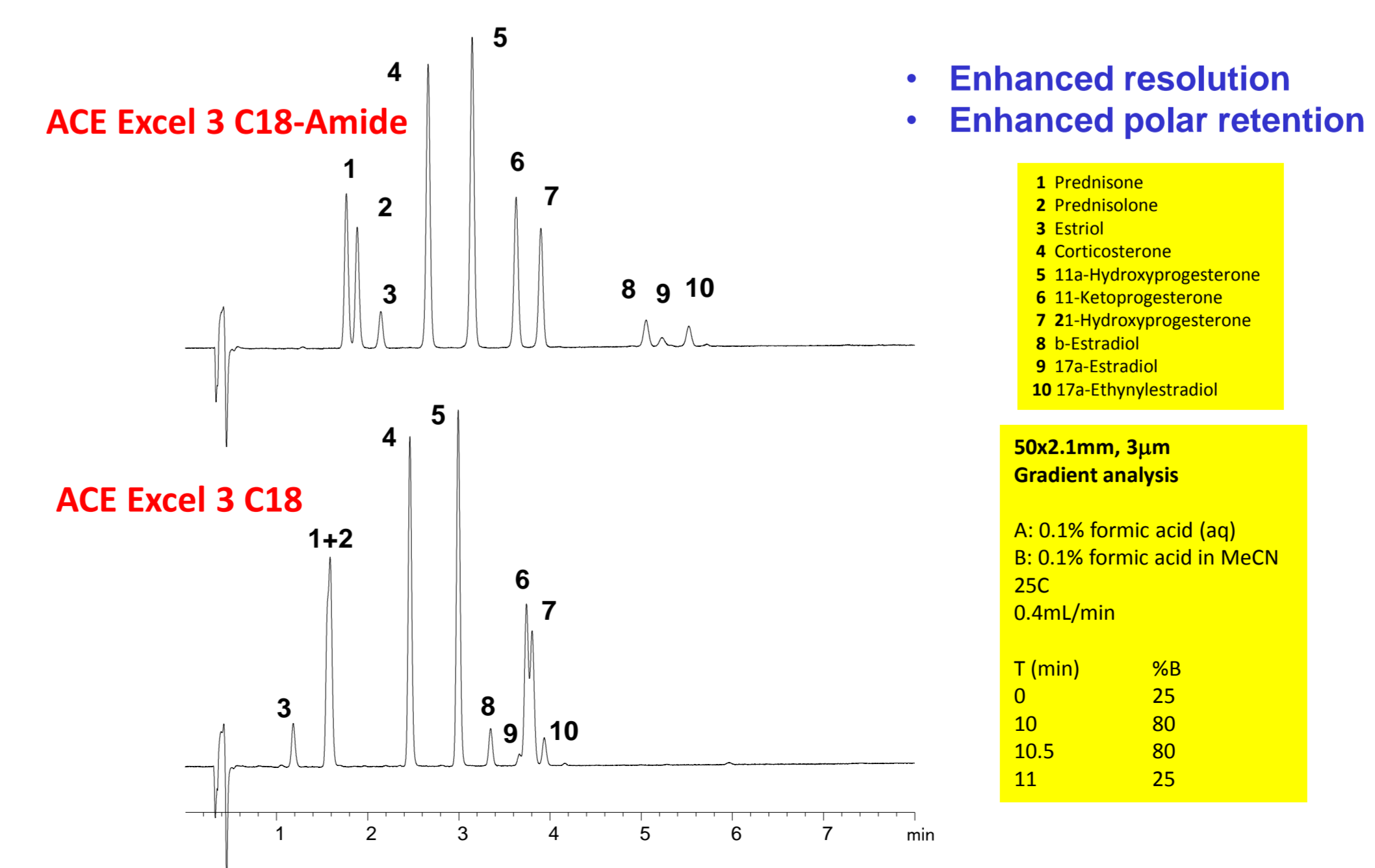
9. SEPARATION OF CATECHOLS AND RESORCINOLS



10. RAPID BEVERAGE ANALYSIS: WINE ACIDS - 100% AQUEOUS



11. PHARMA COEPIEL RELATED ANALYSES: STEROIDS



12. SUMMARY AND CONCLUSIONS

- Separations of very polar to non polar species are achievable using the ACE[®] C18-Amide[™].
- The ACE[®] C18-Amide[™] provides alternative selectivity to C18 based phases which is ideal for method development or sample screening purposes. Further applications are available.
- The unique ligand design of the ACE[®] C18-Amide[™] improves the hydrophobic retention mechanism contribution to separations whilst providing enhanced stationary phase stability.
- The ACE[®] C18-Amide[™] provides chromatographers and method developers with a NEW selectivity option for mixtures containing very polar and / or non-polar analytes.