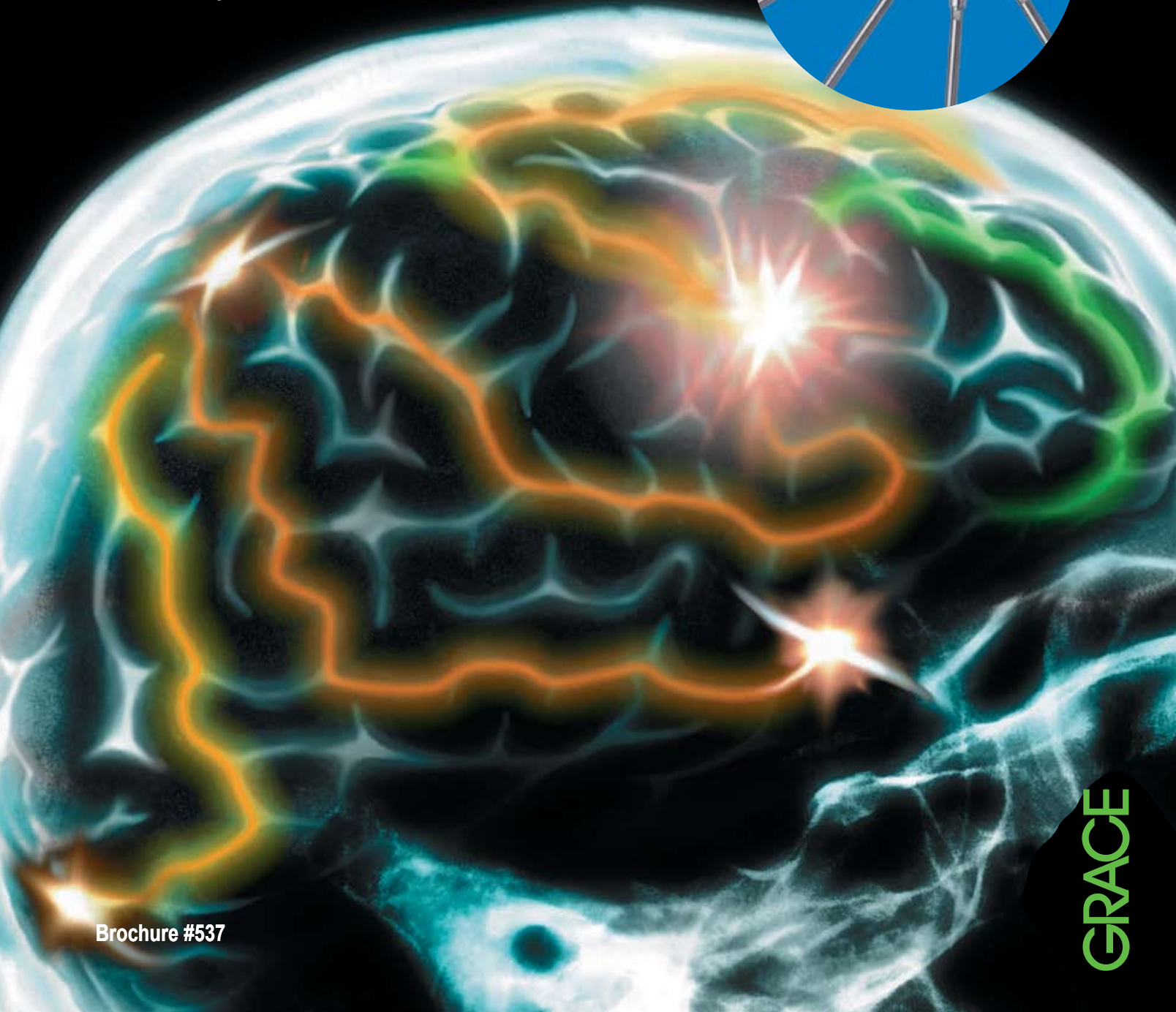
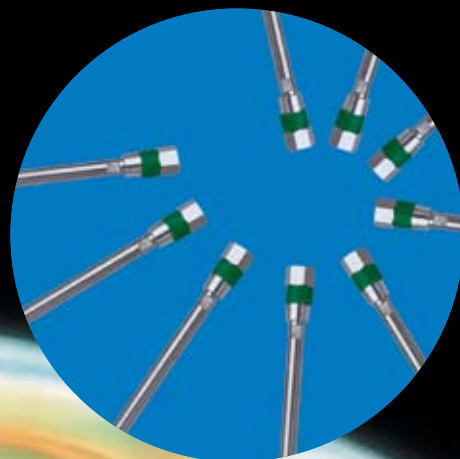


GraceSmart™

HPLC Columns

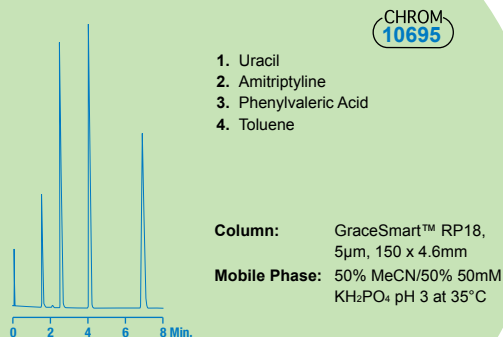
- High Purity Phases
- Efficient and Reproducible
- General Use Selectivity
- Exceptional Value



High Quality HPLC Phases

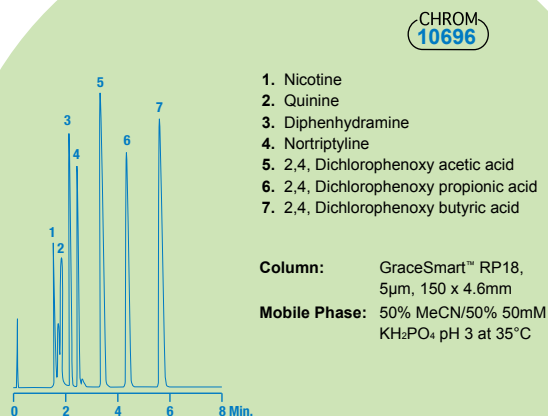
High purity silica and uniform bonded phase coverage translates to symmetrical peaks for acids/bases, and predictable reversed phase selectivity. Whether routine analysis or new method developments, use GraceSmart™ columns to get premium performance without a premium price.

Acids, Bases and Neutrals



Get symmetrical peaks shapes for strong acids and bases

Standards Mix



Baseline resolve challenging separations

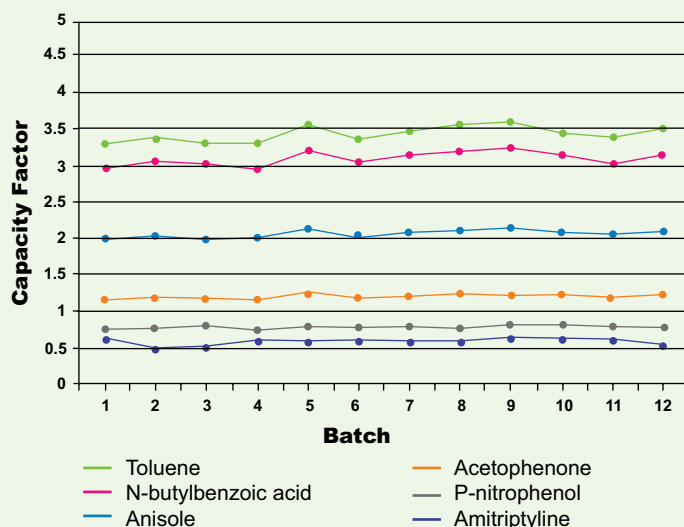
GraceSmart™ Specifications

Phase	C18
Encapping	TMS, nonpolar
Typical Efficiency	>85,000 plates/m
Surface Area	220m ² /g
Pore Size	120Å
Particle Size	5µm

Reproducible Methods Start with Reproducible Columns

Our tightly controlled silica synthesis and bonding keep capacity factor and selectivity variations to a minimum. The advanced packing methods deliver consistently high column-to-column efficiency.

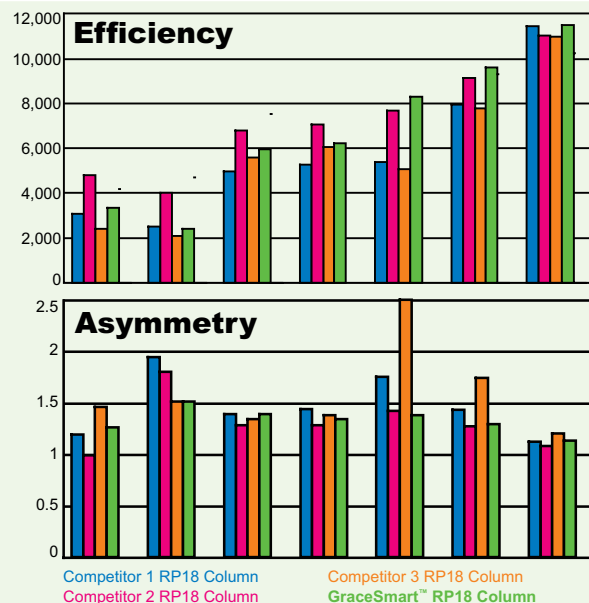
Highly Reproducible Selectivity



Consistent batch-to-batch capacity for acidic, basic & neutral compounds

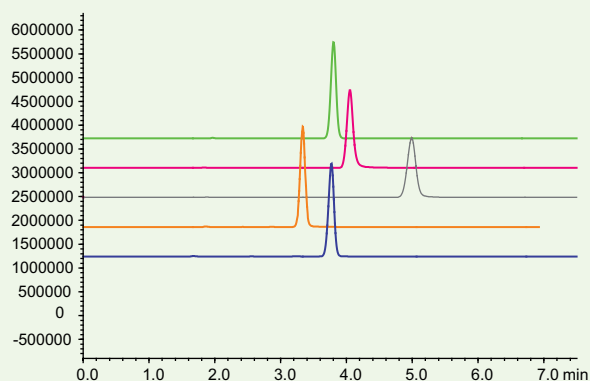
Expect Competitive Performance

Efficient manufacturing is driving force for competitive pricing, but certainly not at the risk of non-competitive performance. GraceSmart columns show equal or better efficiency and asymmetries for challenging base and acid components in comparison to industry leading columns



GraceSmart™ columns compares favorably to leading competitor columns

Amoxicillin (U.S.P.)



— GraceSmart™ C18 Column
— Competitor 1 C18 Column
— Competitor 2 C18 Column
— Competitor 3 C18 Column
— Competitor 4 C18 Column

Column: GraceSmart™ C18 Column, 4.6 x 250mm
(Part No. **5138810**)

Mobile Phase: Isocratic, 0.05 N monobasic potassium phosphate pH5:
Acetonitrile 96:4

Flow Rate: 1.5ml/min

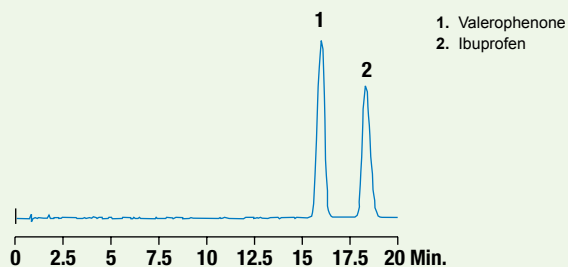
Detector: UV, 230nm

Column Temp: 30°C

Injection Vol: 10µl

	USP Spec	GraceSmart™ C18 Col	Comp 1 C18 Col	Comp 2 C18 Col	Comp 3 C18 Col	Comp 4 C18 Col
Ret. Time (min)	N/A	3.800	4.050	4.988	3.333	3.768
Theoretical plates	≥1700	8543	7216	6230	7049	7680
Tailing Factor	≤2.5	1.015	1.180	1.041	1.034	0.979
k'	1.1 ≤ k' ≤ 2.8	1.2	1.6	2.3	0.99	1.6

Ibuprofen (U.S.P.)



Column: GraceSmart™ C18 Column, 4.6 x 150mm
(Part No. **5138812**)

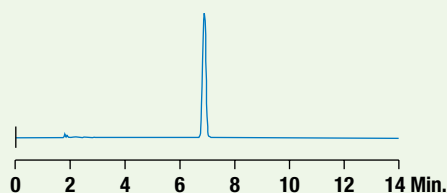
Mobile Phase: H₂O (adjusted with phosphoric acid to a pH of 2.5) :
Acetonitrile 6.5:3.5

Flow Rate: 2ml/min

Detector: UV, 214nm

Injection Vol: 5µl

Simvastatin Tablets (U.S.P)



Column: GraceSmart™ C18 Column, 4.6 x 250mm
(Part No **5138810**)

Mobile Phase: 0.39% monobasic sodium phosphate pH4.5: Acetonitrile 35:65

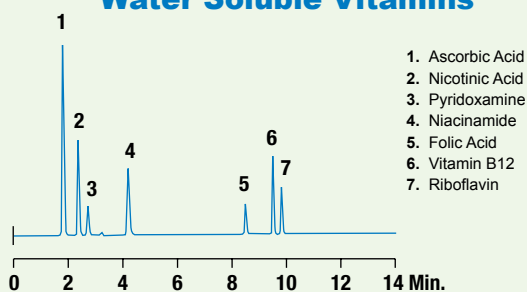
Flow Rate: 1.5ml/min

Detector: UV, 238nm

Column Temp: 45°C

Injection Vol: 10µl

Water Soluble Vitamins



1. Ascorbic Acid
 2. Nicotinic Acid
 3. Pyridoxamine
 4. Niacinamide
 5. Folic Acid
 6. Vitamin B12
 7. Riboflavin

Column: GraceSmart™ C18 Column, 5µm, 4.6 x 150mm
(Part No. **5138812**)

Mobile Phase: **A:** 0.1M NH₄H₂PO₄ Buffer, pH4.5
B: Acetonitrile

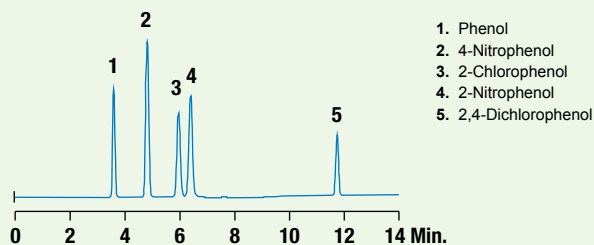
Gradient: (Time, %B): (0,5), (4,5), (10,40), (15,40)

Flow Rate: 1.0mL/min

Detector: UV at 254nm

Injection Vol: 2µl

Phenols



1. Phenol
 2. 4-Nitrophenol
 3. 2-Chlorophenol
 4. 2-Nitrophenol
 5. 2,4-Dichlorophenol

Column: GraceSmart™ C18 Column, 5µm, 4.6 x 150mm
(Part No. **5138810**)

Mobile Phase: **A:** 1% Glacial Acetic Acid in Water
B: 1% Glacial Acetic Acid in Methanol

Gradient: (Time, %B): (0,45), (6,45) (8,60), (15,80)

Flow Rate: 1.0mL/min

Detector: UV at 280nm

Injection Vol: 10µl

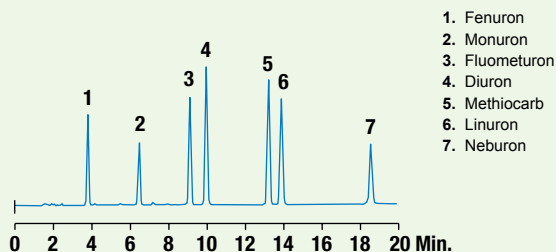
Choose Wisely - GraceSmart® Columns

Grace Davison Discovery Sciences sets a new standard in HPLC columns. We make everything -from the silica particle to the finished product. Our streamlined manufacturing process allows delivery of the highest performance, at an exceptional value!

GraceSmart™ RP18 Columns

Part No.	i.d. x Length	Particle Size	Price
5138812	4.6 x 150mm	5µm	\$153
5138810	4.6 x 250mm	5µm	\$153
5138811	2.1 x 150mm	5µm	\$153
5138813	2.1 x 250mm	5µm	\$153

Carbamate & Urea



1. Fenuron
2. Monuron
3. Fluometuron
4. Diuron
5. Methiocarb
6. Linuron
7. Neburon

Column: GraceSmart™ C18 Column, 120Å, 5µm, 4.6 x 150mm (Part No 5138812)

Mobile Phase: A: 0.025M KH₂PO₄, pH3.2 B: Acetonitrile

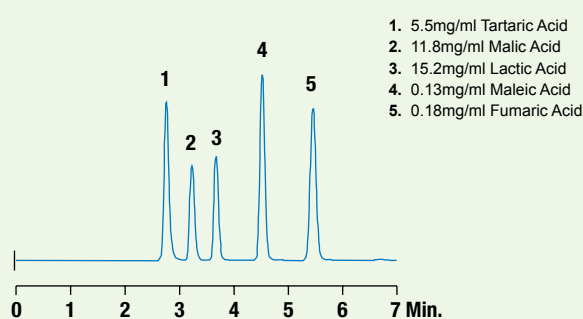
Gradient: (Time, %B): (0,30), (20,60)

Flow Rate: 1.0ml/min

Detector: UV at 240nm

Injection Vol: 10µl

Organic Acids



1. 5.5mg/ml Tartaric Acid
2. 11.8mg/ml Malic Acid
3. 15.2mg/ml Lactic Acid
4. 0.13mg/ml Maleic Acid
5. 0.18mg/ml Fumaric Acid

Column: GraceSmart™ C18 Column, 120Å, 5µm, 4.6 x 150mm (Part No 5138810)

Mobile Phase: 0.025M KH₂PO₄(pH2.5) : Methanol, 97:3

Flow Rate: 0.7ml/min

Detector: UV at 220nm

Injection Vol: 1µl

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