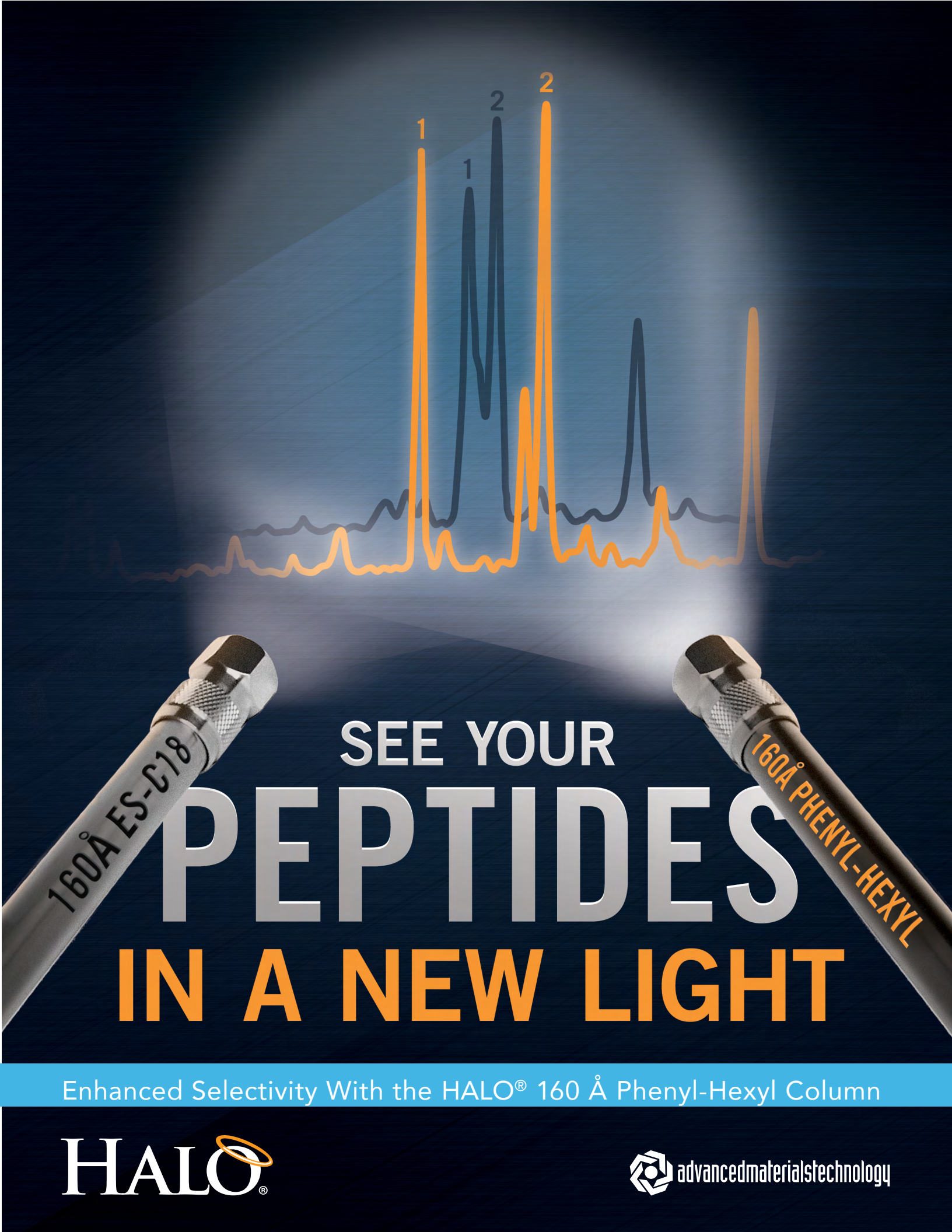


SEE YOUR PEPTIDES IN A NEW LIGHT

Enhanced Selectivity With the HALO® 160 Å Phenyl-Hexyl Column

HALO®

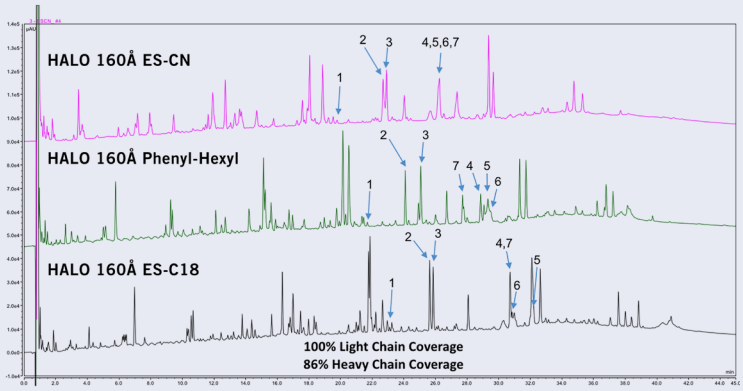
advancedmaterialstechnology

INTRODUCING HALO® 160 Å PHENYL-HEXYL

HALO® 160 Å Phenyl-Hexyl columns are specifically designed to offer alternate selectivity to HALO 160 Å ES-C18 and HALO 160 Å ES-CN for separations of peptides and tryptic digests. The Fused-Core® particle design with a total particle size of 2.7 µm and 0.5 µm shell with 160 Å pores enables high resolution at elevated flow rates. Additionally, HALO 160 Å Phenyl-Hexyl columns have similar efficiency to sub-2-micron columns without the inconvenience of higher pressure.

UNIQUE SELECTIVITY

Figure 1. The unique selectivity of HALO 160 Å Phenyl-Hexyl enables different resolutions for tryptic digest fragments compared to HALO 160 Å ES-C18 and HALO 160 Å ES-CN.



PEAK IDENTITIES

1. FTISADTSKNTAYLQMNSLR
2. LScAASGFNIKDTYIHWVR
3. GFYPSDIAVEWESNGQPENNYK
4. LLIYSASFLYSGVPSR
5. SGTASVVcLLNNFYPR
6. ScDKTHTcPPcPAPELLGGPSVFLFPPKPK
7. VVSVLTVLHQDWLNGKEYK

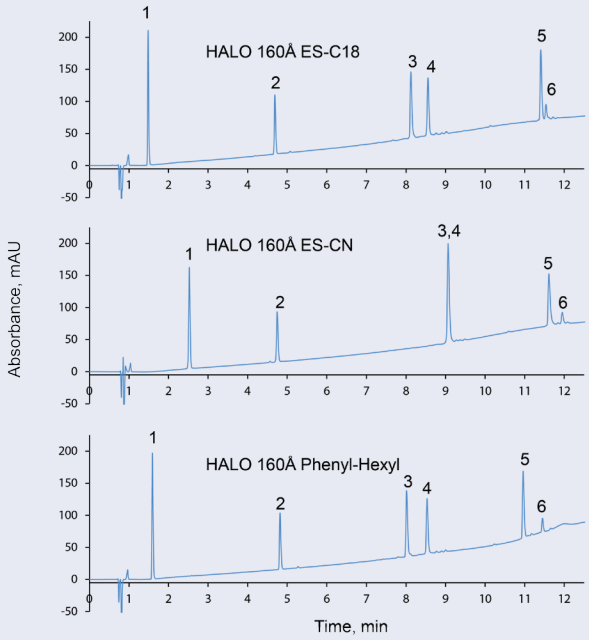
TEST CONDITIONS:

Column: 2.1 x 100 mm
Top: HALO 160 Å ES-CN, 2.7 µm
Middle: HALO 160 Å Phenyl-Hexyl, 2.7 µm
Bottom: HALO 160 Å ES-C18, 2.7 µm

Part Numbers:
Top: 92122-604
Middle: 92112-606
Bottom: 92122-602

Mobile Phase A: Water/10 mM difluoroacetic acid
Mobile Phase B: ACN/10 mM difluoroacetic acid
Gradient: 2-50% B in 60 min
Flow Rate: 0.3 mL/min
Temperature: 60 °C
Detection: 220 nm
Injection: 5 µL (0.2 mg/mL)
Sample: Trastuzumab Tryptic Digest

Figure 2. This figure demonstrates the utility of the unique selectivity of the 160 Å Phenyl-Hexyl Peptide phase. The initial separation using HALO 160 Å ES-C18 shows inadequate resolution of peaks five and six. The same separation was attempted on a HALO 160 Å ES-CN column, which improved the resolution of peaks five and six, but resulted in coelution of peaks three and four. On the contrary, the HALO 160 Å Phenyl-Hexyl column showed excellent resolution for all peaks.



TEST CONDITIONS:

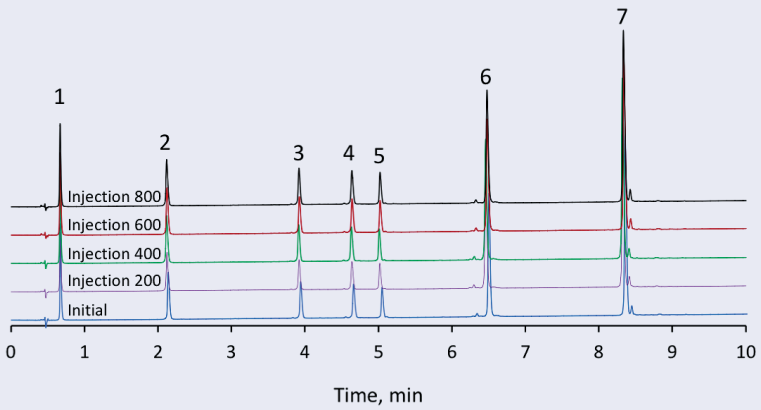
Columns: 2.1 x 150 mm
Top: HALO 160 Å ES-C18, 2.7 µm
Middle: HALO 160Å ES-CN, 2.7 µm
Bottom: HALO 160 Å Phenyl-Hexyl, 2.7 µm

Part Numbers:
Top: 92122-702
Middle: 92122-704
Bottom: 92112-706

Mobile Phase A: 0.1% formic acid in water/10 mM ammonium formate
Mobile Phase B: 50/50 n-propanol/water + 0.1% formic acid + 10 mM ammonium formate (pH: 3.45)
Gradient: 10-60% B in 15 min
Flow Rate: 0.4 mL/min
Temperature: 60 °C
Detection: 220 nm
Injection: 2 µL
Sample: (1) tyr-tyr-tyr, (2) angiotensin II, (3) angiotensin 1-12, (4) melittin, (5) sauvagine and (6) ß-endorphin

RUGGED STABILITY

Figure 3. The rugged column stability under low pH and high temperature mobile phase conditions while using a sample containing peptides and small proteins is illustrated in Figure 3. HALO 160 Å Phenyl-Hexyl columns can be run at a maximum temperature of 60 °C and with the low pH mobile phase conditions that are typically used for tryptic digests and polypeptides.

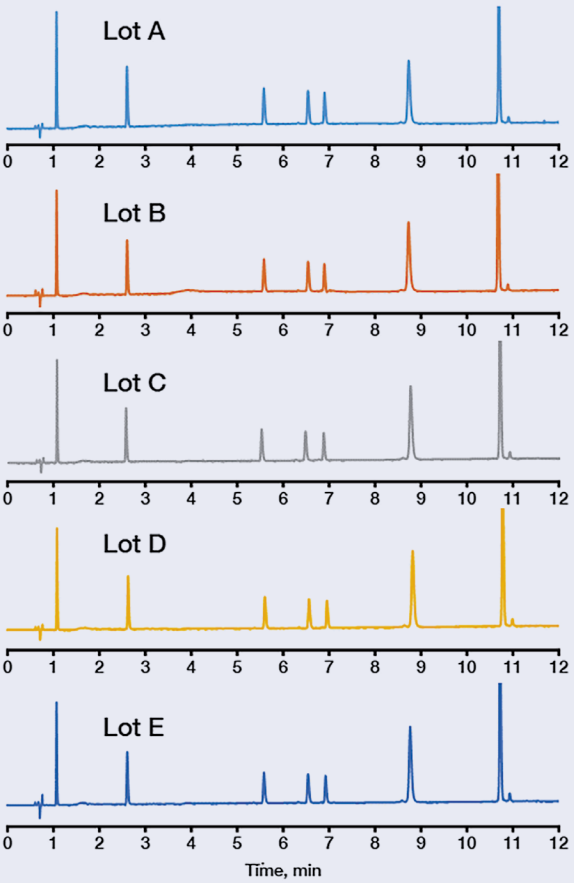


TEST CONDITIONS:

Column: 2.1 x 100 mm
HALO 160 Å Phenyl-Hexyl, 2.7 µm
Part Number: 92112-606
Mobile Phase A: Water/0.1% TFA
Mobile Phase B: 70/30 ACN/water/0.1% TFA
Gradient: 9-95% B in 10 min
Flow Rate: 0.5 mL/min
Temperature: 60 °C
Detection: 220 nm
Injection: 2 µL
Sample: (1) gly-tyr, (2) val-tyr-val, (3) methionine enkephalin, (4) angiotensin II, (5) leucine enkephalin, (6) bovine RNase A and (7) bovine insulin

LOT TO LOT REPRODUCIBILITY

Figure 4. The manufacturing process for HALO 160 Å Phenyl-Hexyl bonded phase is tightly controlled to yield repeatable batches. Each lot is quality tested with a mix of peptides and small proteins to ensure lot to lot reproducibility. A lot to lot comparison is shown below in Figure 4.



TEST CONDITIONS:

Column: 4.6 x 100 mm
HALO 160 Å Phenyl-Hexyl, 2.7 µm
Part Number: 92114-606
Mobile Phase A: 10/90 ACN/water/0.1% TFA
Mobile Phase B: 70/30 ACN/water/0.1% TFA
Gradient: 0-50% B in 15 min
Flow Rate: 1.5 mL/min
Temperature: 30 °C
Detection: 220 nm
Injection: 5 µL
Sample: (1) gly-tyr, (2) val-tyr-val, (3) methionine enkephalin, (4) angiotensin II,(5) leucine enkephalin, (6) bovine RNase A and (7) bovine insulin

HALO®
BIOCLASS

HALO 160 Å Phenyl-Hexyl			
Dimension - ID x length (mm)	Part No.	Dimension - ID x length (mm)	Part No.
2.1 x 20	92112-206	3.0 x 100	92113-606
2.1 x 30	92112-306	3.0 x 150	92113-706
2.1 x 50	92112-406	3.0 x 250	92113-906
2.1 x 75	92112-506	4.6 x 20	92114-206
2.1 x 100	92112-606	4.6 x 30	92114-306
2.1 x 150	92112-706	4.6 x 50	92114-406
2.1 x 250	92112-906	4.6 x 75	92114-506
3.0 x 20	92113-206	4.6 x 100	92114-606
3.0 x 30	92113-306	4.6 x 150	92114-706
3.0 x 50	92113-406	4.6 x 250	92114-906
3.0 x 75	92113-506		

HALO 160 Å Phenyl-Hexyl Guard Columns, 3/Pack	
Dimension - ID x length (mm)	Part No.
2.1 x 5	92112-106
3.0 x 5	92113-106
4.6 x 5	92114-106
Guard Column Holder (1)	94900-001

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