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SWEDISH EXCELLENCE IN NANOPORUS SILICA SVEATM (U)HPLC Columns





ABOUT SVEA™ COLUMNS

Nanologica offers best-in-class (U)HPLC analytical columns that provide excellent chromatographic performance with sharp peak shapes and robust performance under extreme pH conditions (<1 and > 10 respectively).

The unique surface chemistry and controlled particle properties of Nanologica's proprietary silica result in low back pressures and high plate numbers. With an exceptionally strong silica backbone SVEA™ columns offer long life cycles.

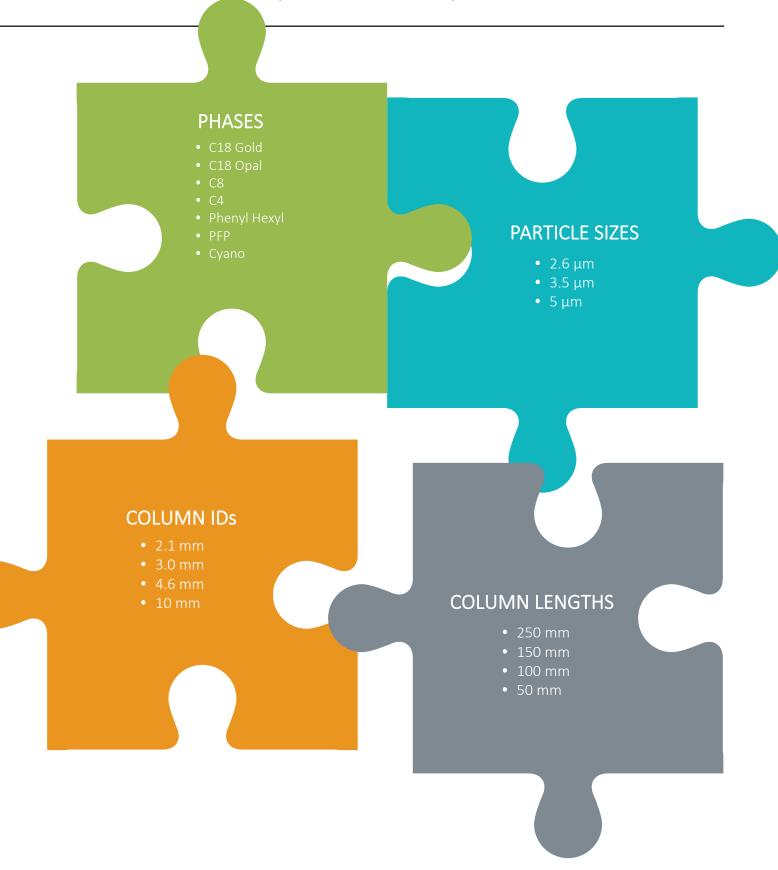
SVEA™ columns gives excellent selectivity across a wide range of chemistry needs.

We take pride in the quality, design and performance of our products. They embody our core value: Swedish Excellence in Nanoporous Silica.





Nanologica offers best-in-class (U)HPLC with a broad portfolio of bonded phases.



Content

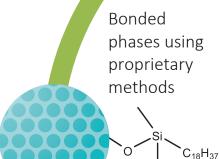
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FROM SILICA TO COLUMNS

Nanologica has been producing, modifying and coating silica for several years. Modern technology and demanding quality control is deployed at each step of the manufacturing process to ensure highest possible product performance. The extensive experience and knowledge in silica chemistry, along with internal control of the entire value chain, guarantees exceptional quality and excellent batch to batch reproducibility.



Excellent chromatographic performance



Proprietary manufacturing of high purity silica

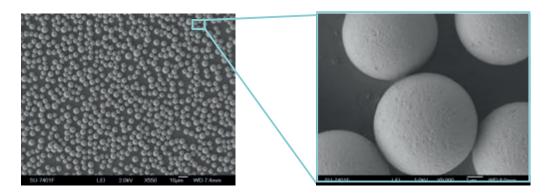


Controlled particle size and particle size distribution



SILICA PRODUCTION AND FUNCTIONALISATION

Nanologica manufactures spherical porous silica particles with controlled pore size, particle size, and particle size distribution resulting in excellent chromatographic properties. The Scanning Electron Microscope (SEM) image below shows perfect spherical shapes and narrow particle size distribution with no fines or crushed particles. The magnified image shows perfectly smooth silica surfaces with no irregularities.



Nanologica offers a range of phases with different and complementary chromatographic properties. The functionalisation is performed using proprietary production protocols to produce densely functionalised and end-capped silica particles with low residual silanol activity. The coated silica particles exhibit excellent chromatographic performance and outstanding chemical stability.

Stationary phase	Chemical structure	End capped	USP code	
C18 Gold C18 Opal Coreshell C18	C _M H _{3F}	Yes	L1	
C8	O S CoHer	Yes	L7	
C4	O C44	Yes	L26	
Phenyl Hexyl Coreshell Phenyl Hexyl		Yes	L11	
PFP (Pentafluorophenyl)	0 - 9 F	Yes	L43	
Cyano	o si con	Yes	L10	

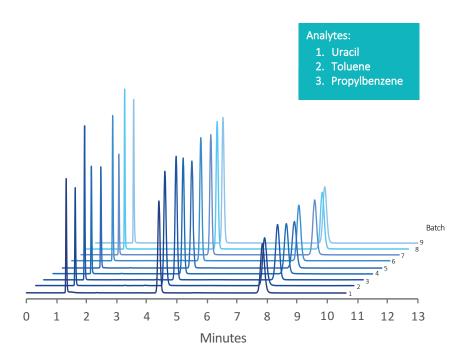
REPRODUCIBILITY

Nanologica's coating shows high batch to batch reproducibility for both retention times and efficiencies.

: SVEA C18 Gold 150x4.6 mm 5 μm Column

Mobile Phase : Acetonitrile/H₂O 70/30%

Flow Rate : 1.0 mL/min : 30 °C Temperature Detection : UV 210 nm



DURABILITY

The SVEA columns show excellent durability in harsh acidic as well as harsh basic conditions. Both efficiencies and retention times remain almost unaffected even after more than 7 000 column volumes, as shown in the stability tests below.

ACIDIC CONDITIONS

B - 1% TFA in acetonitrile

/ Rate : 1.0 mL/min

% Initial efficiency Retention time 120 12 11 100 10 % Initial efficiency 80 9 60 40 6 20 5 0 4 1000 2000 3000 4000 5000 6000 7000 8000 Time (min)

10% B for 2 min

90-10% B in 1 min

10% B for 2 min

BASIC CONDITIONS

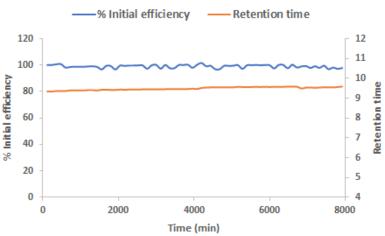
 Column
 : SVEA C18 Gold 100x4.6 mm 5 μm
 Gradient cycle
 : 10-90% B in 5 min

 4 10 mM ammonium bioschanata nH 0.6
 90% B for 2 min

Mobile Phase : A - 10 mM ammonium bicarbonate, pH 9.6

B - Acetonitrile

Analyte : Progesterone



BED STABILITY

Bed stability testing shows maintained efficiency and stable back pressure after close to 100 000 column volumes.

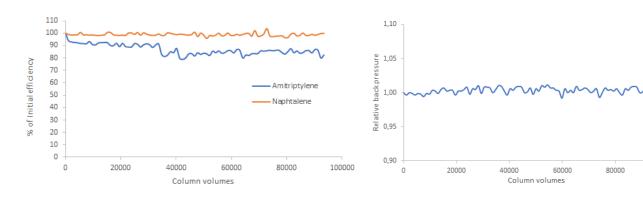
BED STABILITY

Column : SVEA C18 Gold 100x3.0 mm 5 μ m

Mobile Phase : 20 mM Potassium phosphate buffer at pH 2.7/MeOH 40/60

Flow Rate : 0.5 mL/min
Temperature : 30°C
Analyte : Amitriptyline

Naphthalene



COLUMN LIFE CYCLE

The long life cycle of the SVEA columns is demonstrated by preserved separation capacity even after 1 700 column injections when analysing a food sample.

LIFE CYCLE

 $\hbox{ {\it Column} } \hspace{3.5cm} : SVEA \ C18 \ Gold \ 250x4.6 \ mm \ 5 \ \mu m \\$

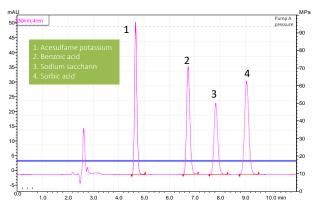
Mobile Phase : Methanol: 20mmol/L Ammonium Acetate=20:80 (v:v)

Flow Rate : 1.0 mL/minTemperature : 35°C

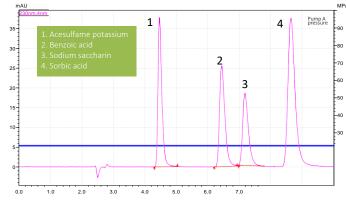
Analyte : Acesulfame potassium

Benzoic acid Sorbic acid Sodium saccharide

Separation of acesulfame potassium, benzoic acid, sodium saccharin and sorbic acid. Analytical sample prepared from Ansai honey. Data kindly provided by SinoUnison Technology Co., Ltd., China.



Separation after **one injection** using a new SVEA C18 Gold column.



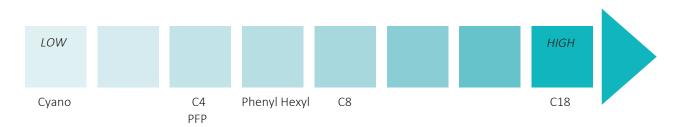
Separation after 1700 injections.

100000

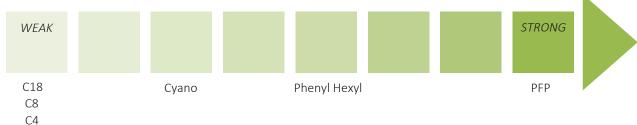
COLUMN SELECTION GUIDE

Different kinds of functionalisation offer different interaction mechanisms between the stationary phase and analytes to fit a wide range of applications. The figure below is a guideline for choosing the right type of bonded phase depending on the interaction between the analyte and the stationary phase.

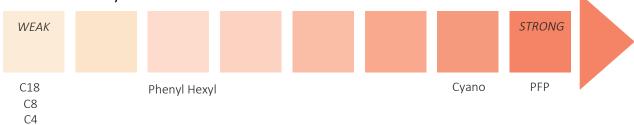
HYDROPHOBICITY



π-π INTERACTIONS



ELECTROSTATIC/DIPOLE INTERACTIONS



HYDROGEN BONDING



Silica : Type B Silica Particle Size : 3.5, 5 μm $: 300 \text{ m}^2/\text{g}$ Surface Area Pore Size : 110 Å : 0.85 mL/g Pore Volume Carbon Load : 19%

: $3.7 \, \mu mol/m^2$ **Ligand Density**

Bonded Phase : Dimethyloctadecylsilane

End-capping : Yes USP Code :L1 pH Range : 1-10

- General first choice column
- High hydrophobic retention
- Wide range of analytes
- Excellent peak shape for acids and bases

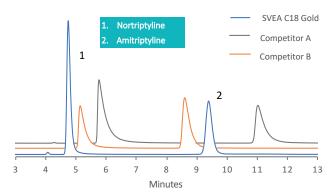


SVEA C18 Gold is the first-choice LC column for a wide range of analytes. The high carbon load provides high retention and selectivity for compounds with moderate to high lipophilicity. Thorough end-capping combined with very low acidity and homogenously distributed residual silanol groups result in excellent peak shape and efficiencies with bases as well as acidic compounds.

Comparison of peak shapes and retention times of Nortriptyline and Amitriptyline

: SVEA C18 Gold 150x4.6 mm 5 µm Column : 20% 25 mM KH₂PO₄ pH 7.0 80% methanol **Mobile Phase**

:1 mL/min Flow Rate : 30°C Temperature : UV 210 nm Detection



Thorough end-capping and low polarity of the silica surface of SVEA C18 Gold gives significantly better peak shapes of anti-depressants, compared to

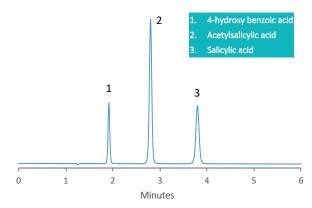
Acetylsalicylic acid and related compounds

: SVEA C18 Gold 150x4.6 mm 5 µm Column

: 60% 0.3% H₃PO₄ **Mobile Phase**

40% acetonitrile

Flow Rate :1 mL/min Temperature : 30°C Detection : UV 237 nm



High separation efficiency and symmetrical peak shapes. The tailing factor for salicylic acid is 0.96.

Order Information SVEA C18 Gold Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	A533V1	A553V1	A563V1	A583V1	
	4.6	A535V1	A555V1	A565V1	A585V1	
3.5 μm	2.1	A332V1	A352V1	A362V1	-	
	3.0	A333V1	A353V1	A363V1	A383V1	
	4.6	A335V1	A355V1	A365V1	A385V1	

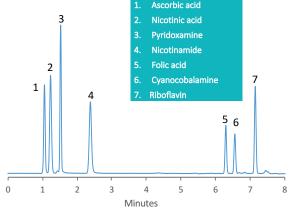
Water soluble vitamins

: SVEA C18 Gold 150x4.6 mm 5 µm

: A 25 mM KH₂PO₄ pH 3.6 Mobile Phase

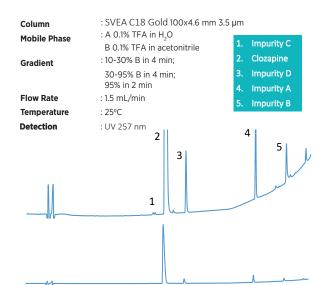
B acetonitrile Gradient : 5-30% B in 8 min : 1.5 mL/min Flow Rate : 25°C

Temperature



Sharp peaks and selectivities of vitamins.

Clozapine and related impurities



The high efficiency of SVEA C18 Gold 3.5 μm gives an extraordinary resolution profile over the forced degradation sample of Clozapine.

Minutes

3

4

10

Low pH stability at high temperature

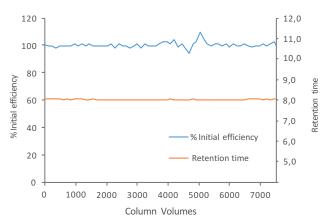
: SVEA C18 Gold 150x4.6 mm 5 µm Column **Mobile Phase**

: A 1% TFA in $\rm H_2O~pH~0.9~B~1\%~TFA$ in acetonitrile

Gradient Cycle : 10-90% B in 5 min; 90% B in 2 min 90-10%

B in 1 min; 10% B in 2 min

: 1.0 mL/min Flow Rate : 60°C Temperature : UV 254 nm Detection



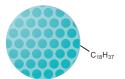
No change in either efficiency or retention time for ehylbenzene after running ${\bf gradient}$ cycles at pH 0.9 and 60°C for more than 7000 column volumes.

Silica : Type B Silica Particle Size : 3.5, 5 μm Surface Area $: 300 \text{ m}^2/\text{g}$ Pore Size : 110 Å Pore Volume : 0.85 mL/g Carbon Load : 19%

Ligand Density : 3.7 μmol/m² **Bonded Phase** : Octadecyl silane

End-capping : Yes **USP** Code : L1 pH Range : 1-11

- · Recommended for high pH applications
- Proprietary coating ensures solely hydrophobic interaction
- Better peak shape for ionisable compounds
- · Low bleeding of ligands



SVEA C18 Opal is coated with a proprietary bonding technology, which provides a fully covered silica surface. The column material is protected against hydrolysis of the ligands at low pH and silica dissolution at high pH. The coating results in only hydrophobic interactions, resulting in excellent peak shape for all types of analytes.

The proprietary bonding technology binds the ligands strongly, providing exceptionally low bleeding.

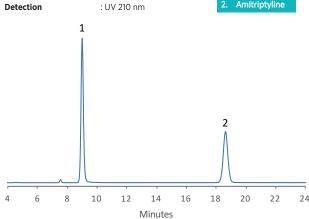
Separation of Nortriptyline and Amitriptyline

Column : SVEA C18 Opal 250x4.6 mm 5 µm **Mobile Phase**

: 20% 25 mM KH₂PO₄ pH 7.0

Flow Rate :1 mL/min Temperature : 30°C





Highly efficient and symmetrical peak shapes for Nortriptyline and Amitriptyline. Tailing factor for Nortriptyline is 1.08, and for Amitriptyline 1.02.

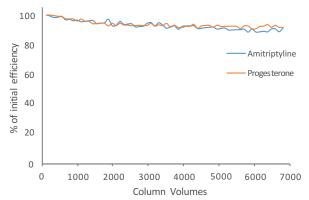
High pH stability at high temperature

: SVEA C18 Opal 250x4.6 mm 5 µm Flow Rate : 1 mL/min Column Mobile Phase : A 10 mM NH₄HCO₄ pH 10.5 Temperature : 60°C B acetonitrile Detection : UV 210 nm

: 10-50% B in 60 min Gradient

 $\textbf{Gradient Cycle}{:}\ 10\text{-}90\%\ B\ in\ 13\ min;\ 90\%\ B\ in\ 5\ min;$

90-10% B in 2 min: 10% B in 5 min



The efficiencies of the neutral (Progesterone) and basic (Amitriptyline) compounds are almost unaffected using gradient cycles after more than 7000 column volumes

Order Information SVEA C18 Opal Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	A533V3	A553V3	A563V3	A583V3	
	4.6	A535V3	A555V3	A565V3	A585V3	
3.5 μm	2.1	A332V3	A352V3	A362V3	-	
	3.0	A333V3	A353V3	A363V3	A383V3	
	4.6	A335V3	A355V3	A365V3	A385V3	

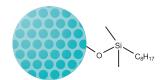
SVEA C8

 $\begin{array}{lll} \mbox{Silica} & : \mbox{Type B Silica} \\ \mbox{Particle Size} & : 3.5, 5 \ \mu m \\ \mbox{Surface Area} & : 300 \ m^2/g \\ \mbox{Pore Size} & : 110 \ \mbox{Å} \\ \mbox{Pore Volume} & : 0.85 \ mL/g \\ \mbox{Carbon Load} & : 11\% \\ \end{array}$

Ligand Density : 3.7 μmol/m²

Bonded Phase : Dimethyloctylsilane

- Similar selectivity for lipophilic compounds as C18 Gold
- Lower retention than C18 Gold
- Slightly different selectivity for ionized acids and bases compared to SVEA C18 Gold
- Excellent peak shape for acids and bases



An alternative media to SVEA C18 Gold that gives lower retention. Due to the more hydrophilic nature of the bonded phase, ionized acids and especially bases can have better peak shapes and different selectivity compared to SVEA C18 Gold. Recommended for mixture containing moderately polar and very hydrophobic compounds.

Comparison of peak shapes and retention times between C8 and C18 Gold for two anti-depressants

 $\textbf{Column} \hspace{1.5cm} : SVEA \hspace{.1cm} C8 \hspace{.1cm} 150x4.6 \hspace{.1cm} mm \hspace{.1cm} 5 \hspace{.1cm} \mu m \hspace{.1cm} and \hspace{.1cm} C18 \hspace{.1cm} Gold \hspace{.1cm} 5 \hspace{.1cm} \mu m$

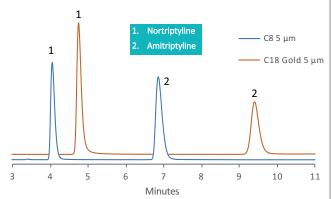
 $\textbf{Mobile Phase} \hspace{1.5cm} : 20\% \ 25 \ \text{mM KH}_2 \text{PO}_4 \ \text{pH} \ 7.0$

80% methanol

 Flow Rate
 :1 mL/min

 Temperature
 : 30°C

 Detection
 : UV 210 nm



The excellent peak shapes for ionized compounds with SVEA C8 is revealed by analysing anti-depressants.

Water soluble organic acids

 $\begin{array}{ll} \textbf{Column} & : \text{SVEA C8 } 250 \text{x} 4.6 \text{ mm 5} \text{ } \mu\text{m} \\ \textbf{Mobile Phase} & : 97\% \ 25 \text{ mM } \text{KH}_2 PO_4 \text{ } pH \ 2.5 \\ \end{array}$

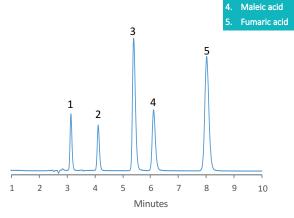
3% methanol

 Flow Rate
 :1 mL/min

 Temperature
 : 25°C

 Detection
 : UV 220 nm

Tartaric acid
 Malic acid
 Lactic acid



Excellent peak shapes and selectivities of water soluble organic acids are obtained at highly hydrophilic elution conditions.

Order Information SVEA C8 Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	B533V1	B553V1	B563V1	B583V1	
	4.6	B535V1	B555V1	B565V1	B585V1	
3.5 μm	2.1	B332V1	B352V1	B362V1	-	
	3.0	B333V1	B353V1	B363V1	B383V1	
	4.6	B335V1	B355V1	B365V1	B385V1	

Comparison of the elution order of phenols between C8 and C18 Gold bonded silica

Column : SVEA C8 150x4.6 mm 5 μm and SVEA C18 Gold 250x4.6 mm 5 μm

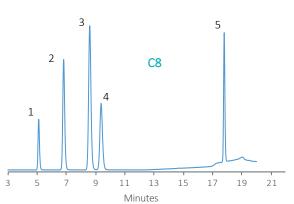
 $\begin{tabular}{lll} \textbf{Mobile Phase} & : A 1\% \ AcOH \ in \ H_2O \\ & B 1\% \ AcOH \ in \ methanol \end{tabular}$

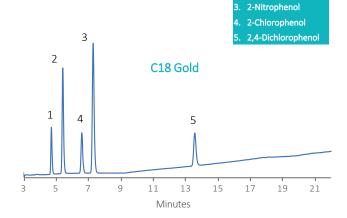
Gradient : C8: 45% B in 10 min C18 Gold: 60% B

 Flow Rate
 : 1 mL/min

 Temperature
 : 300C

 Detection
 : UV 280 nm





C8 is more hydrophilic than C18 Gold as seen by the reversal of the elution order of 2-nitrophenol and 2-chlorophenol.

Clozapine system suitability test

 $\begin{tabular}{lll} \textbf{Column} & : SVEA C8 150 x 4.6 mm 5 μm \\ \begin{tabular}{lll} \textbf{Mobile Phase} & : 20\% 0.38\% Et_3N in H_2O \\ \end{tabular}$

80% methanol

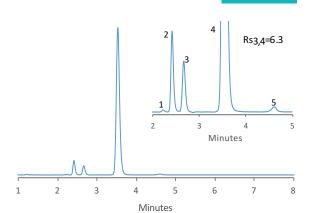
 Flow Rate
 : 1 mL/min

 Temperature
 : 30°C

 Detection
 : UV 257 nm

1. Impurity C 2. Impurity D

3. Impurity A
4. Clozapine
5. Unknown



Sharp peaks and resolution.

Atorvastatin (Lipitor) system suitability test

 Column
 : SVEA C8 100x4.6 mm 3.5 μm

 Mobile Phase
 : 58% 50 mM NH₄OAc pH 4.6

 30% acetonitrile, 12% THF

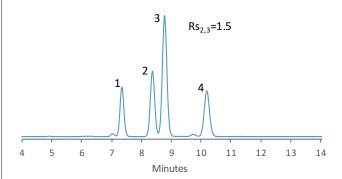
 Flow Rate
 : 1.2 mL/min

 Temperature
 : 30°C

 Detection
 : UV 244 nm

1. Impurity A
2. Impurity B
3. Atorvastatin
4. Impurity C

4-Nitrophenol



Atorvastatin and its diastereomeric Impurity B are seperated well using SVEA C8 3.5 um.

SVEAC4

Silica : Type B Silica Particle Size : 3.5, 5 μm Surface Area $: 300 \text{ m}^2/\text{g}$ Pore Size : 110 Å Pore Volume : 0.85 mL/g Carbon Load : 7%

Ligand Density : 3.7 μmol/m²

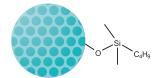
Bonded Phase : Dimethyloctylsilane

End-capping : Yes **USP** Code : L26 pH Range : 1-8

• Recommended for separation of large peptides and proteins

• Very low retention for lipophilic compounds

• Can also be run in HILIC-mode

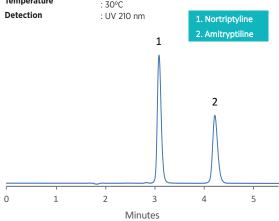


Recommended for extremely lipophilic compounds to reduce analytical time. Excellent starting point for analysing peptide and protein mixtures. For intermediately polar analytes, such as amino acids, SVEA C4 can also be run in HILIC-mode.

Separation of Nortriptyline and Amitriptyline

: SVEA C4 150x4.6 mm 5 µm Column **Mobile Phase** : 20% 25 mM KH₂PO₄ pH 7.0

80% methanol Flow Rate :1 mL/min Temperature : 30°C



Short retention times and symmetrical peaks of the basic anti-depressants

Peptide mix separation

: SVEA C4 150x4.6 mm 5 µm Column

Mobile Phase : A 0.1% TFA in $\ensuremath{H_2O}$

B 0.085% TFA in acetonitrile

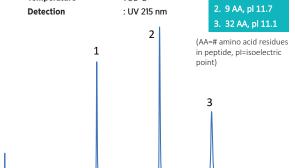
Minutes

1. 14 AA, pl 4.5

50 55

Gradient : 10-50% B in 60 min

:1 mL/min Flow Rate Temperature : 30°C



Separation of three different peptides on SVEA C4.

20 25 30 35 40

10 15

Order Information SVEA C4 Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	C533V1	C553V1	C563V1	C583V1	
	4.6	C535V1	C555V1	C565V1	C585V1	
3.5 μm	2.1	C332V1	C352V1	C362V1	-	
	3.0	C333V1	C353V1	C363V1	C383V1	
	4.6	C335V1	C355V1	C365V1	C385V1	

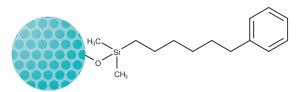
Silica : Type B Silica Particle Size : 3.5, 5 μm Surface Area $: 300 \text{ m}^2/\text{g}$ Pore Size : 110 Å Pore Volume : 0.85 mL/g Carbon Load : 16%

Ligand Density : 3.8 μmol/m²

Bonded Phase : Dimethylphenylhexylsilane

End-capping : Yes **USP** Code :L11 pH Range : 2-8

- Orthogonal chemistry for method development
- Can be used in aquous conditions
- Recommended for separation of aromatics and/or polar analytes



The aromatic ring and the alkyl chain will give a mixed interaction; π - π and hydrophobic interaction, respectively. Good choice as an orthogonal column compared to SVEA C18/C8 in method development, where the traditional alkyl-based stationary phases fail to provide adequate separation.

This media can be used in highly aqueous conditions (100 % wettability), especially for very polar compounds.

Analyses of various phenols on Phenyl Hexyl and C18 Gold bonded silica

: SVEA PhHex 150x4.6 mm 5 μm and SVEA C18 Gold 250x4.6 mm 5 μm Column

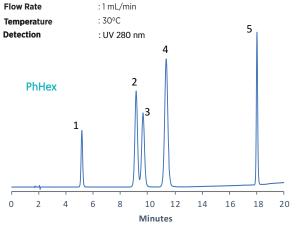
Mobile Phase : A 1% AcOH in H₂O

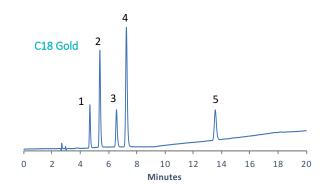
B 1% AcOH in methanol

Gradients : **PhHex**: 45% B in 10 min

45-90% B in 10 min 60-80% B in 14 min

C18: 60% B in 6 min





Selectivity difference between Phenyl Hexyl and C18 Gold for separation of phenols.

Order Information SVEA Phenyl Hexyl Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	F533V1	F553V1	F563V1	F583V1	
	4.6	F535V1	F555V1	F565V1	F585V1	
3.5 μm	2.1	F332V1	F352V1	F362V1	-	
	3.0	F333V1	F353V1	F363V1	F383V1	
	4.6	F335V1	F355V1	F365V1	F385V1	

SVEA PFP

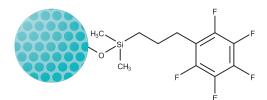
Silica : Type B Silica Particle Size : 3.5, 5 μm Surface Area $: 300 \text{ m}^2/\text{g}$ Pore Size : 110 Å Pore Volume : 0.85 mL/g Carbon Load : 11%

: $1.9 \, \mu mol/m^2$ **Ligand Density**

Bonded Phase : Dimethylpentafluorophenylpropylsilane

End-capping USP Code : L43 pH Range : 2-8

- · Strong retention of protic compounds and analytes with high dipole moments
- Strong π -interaction with electron deficient aromatic rings
- · Recommended for very polar compounds

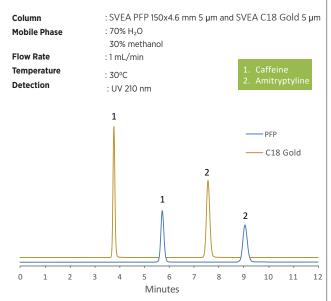


Due to the highly electron rich nature of the aromatic rings of SVEA PFP, the stationary phase interacts strongly with analytes containing polar aprotic and electron deficient aromatic moieties.

Additionally, the highly electronegative surface of the aromatic ring provides strong hydrogen bonding with analytes with protic moieties, such as hydroxyl groups and carboxylic acids. The delocalized charge over the fluorine-carbon bond will interact with analytes containing dipole moments.

The polar nature of SVEA PFP ensures a fully wettable stationary phase, making it suitable for analysing very polar compounds.

Comparison between PFP and C18 Gold bonded phases

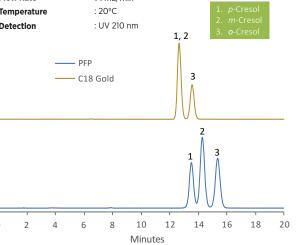


Strong hydrogen bonding of the PFP column: the hydrogen bonding acceptor, caffeine, and the donor, phenol, has much higher retention than for the C18 Gold.

Comparison between PFP and C18 Gold bonded phases

: SVEA PFP 150x4.6 mm 5 μm and SVEA C18 Gold 5 μm Column : 60% H₂O **Mobile Phase**

40% methanol Flow Rate :1 mL/min Temperature : 20°C : UV 210 nm Detection



The SVEA PFP successfully separates three cresol isomers, compared to C18 Gold.

Order Information SVEA PFP Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	P533V1	P553V1	P563V1	P583V1	
	4.6	P535V1	P555V1	P565V1	P585V1	
3.5 μm	2.1	P332V1	P352V1	P362V1	-	
	3.0	P333V1	P353V1	P363V1	P383V1	
	4.6	P335V1	P355V1	P365V1	P385V1	

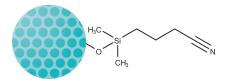
Silica : Type B Silica Particle Size : 3.5, 5 μm Surface Area $: 300 \text{ m}^2/\text{g}$ Pore Size : 110 Å Pore Volume : 0.85 mL/g Carbon Load : 7%

: $3.7 \, \mu mol/m^2$ **Ligand Density**

Bonded Phase : 3-Cyanopropyldimethylsilane

End-capping : Yes **USP** Code : L10 pH Range : 2-7.5

- Very polar stationary phase
- Strong dipole-dipole interactions
- Orthogonal phase in RPLC method development
- Recommended for HILIC and Normal Phase



Recommended for analytes having too high retention on an alkyl-based stationary phase, as well as mixtures of very polar and lipophilic analytes. The nitrile group of the stationary phase interacts favourably with analytes containing double and/or triple bonds, making SVEA Cyano suitable for unsaturated compounds.

Due to its very polar nature, SVEA Cyano can be used in both HILIC-mode as well as in normal phase chromatography.

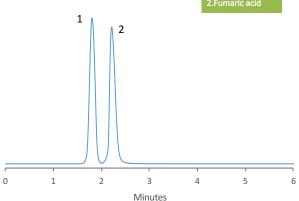
Please refer to the care and use instructions for additional information.

Separation of two isomeric polar organic acids

Column : SVEA CN 150x4.6 mm 5 µm **Mobile Phase** : 97% 20 mM NH₄OAc pH 3.9

3% methanol

Flow Rate :1mL/min Temperature : 40°C Detection : UV 210 nm



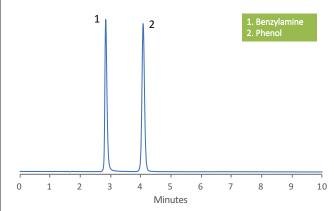
Very short analytical time and base line separation between the two water-

Benzylamine analysed on Cyano bonded silica

: SVEA CN 150x4.6 mm 5 µm Column **Mobile Phase** : 70% 20 mM KH₂PO₄ pH 7.6 30%

methanol

Flow Rate :1 mL/min Temperature : 30°C Detection : UV 210 nm



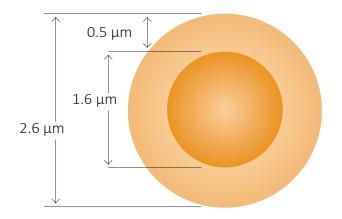
Sharp and symmetrical peaks of basic and highly polar benzylamine.

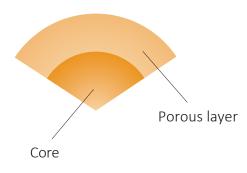
Order Information SVEA Cyano Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
5 μm	3.0	Y533V1	Y553V1	Y563V1	Y583V1	
	4.6	Y535V1	Y555V1	Y565V1	Y585V1	
3.5 μm	2.1	Y332V1	Y352V1	Y362V1	-	
	3.0	Y333V1	Y353V1	Y363V1	Y383V1	
	4.6	Y335V1	Y355V1	Y365V1	Y385V1	

SVEA CORE

SVEA Core is a core shell product which consists of a solid core particle coated with a layer of porous silica, as illustrated below. A key feature of core shell columns is the much narrower particle size distribution compared to the fully porous materials. This results in less space among particles in the column and an increased efficiency. For example, columns packed with 3 µm core shell particles produce efficiencies approaching those packed with 2 μm fully porous particles, but at significantly lower back pressures.





SVEA Core properties:

- Exceptional peak shape for basic, acidic and chelating compounds
- High stability at low and high pH (1-10)
- Excellent back pressure profile

Silica : Type B Silica Particle Size : 2.6 µm

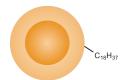
Surface Area $: 110-150 \text{ m}^2/\text{g}$ Pore Size : 80-100 Å Pore Volume : 0.25-0.32 mL/g

Carbon Load : 6-8%

Ligand Density : 3.5 µmol/m2 **Bonded Phase** : Octadecylsilane **End-capping** : Proprietary

USP Code : L1 pH Range : 1-10

- · Core shell technology provides high separation and low back pressures
- Recommended for UPLC applications
- · Excellent base stability



The superficially porous silica layer is bonded with the same proprietary chemistry as SVEA C18 Opal, providing outstanding peak shapes for ionisable compounds and good selectivity for all types of analytes. Core shell technology provides similar efficiencies as sub 2 μm particles while retaining the back pressure of a 3 μm particle, making it possible to run shorter columns on an ordinary HPLC (30-100 mm length).

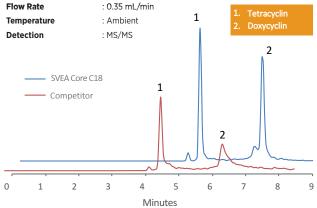
Comparison between SVEA Core C18 2.6 µm and a competitor core shell C18 2.6 μm column

: SVEA Core C18 150x4.6 mm Column : A 0.1% Formic acid in H_2O **Mobile Phase**

B methanol

: 10% B in 2 min; 10-90% B in 4 min; Gradient

90% B in 3 min



The nice peak shapes from the SVEA Core C18 column give better quantifications of the compounds of interest.

Data kindly provided by Animal, Plant and Food Inspection Center – APFIC Jiangsu Entry-Exit Inspection and Quarantine Bureau of People's Republic of China

Comparison between SVEA Core C18 2.6 µm and a competitor core shell C18 2.6 µm column

: SVEA Core C18 150x4.6 mm Column : A 0.1% Formic acid in H₂O

Mobile Phase B methanol

Gradient : 10% B in 2 min; 10-90% B in 4 min;

90% B in 3 min

Flow Rate : 0.35 mL/min Temperature : Ambient Detection : MS/MS SVEA Core C18 Competitor 0 10 11 12

The SVEA Core C18 column is exhibiting superior chromatographical behaviour compared to the competitor core shell column.

Minutes

Data kindly provided by Animal, Plant and Food Inspection Center -APFIC Jiangsu Entry-Exit Inspection and Quarantine Bureau of People's Republic of China

Order Information SVEA Core C18 Columns

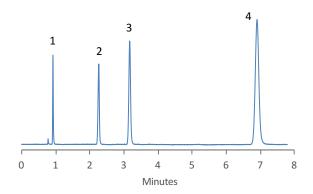
		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
2.6 μm	2.1	A232V6	A252V6	A262V6	-	
	3.0	A233V6	A253V6	A263V6	-	
	4.6	A253V6	A255V6	A265V6	-	

β-Blockers

Column : SVEA Core C18 100x4.6 mm Mobile Phase : 50% 25 mM KH₂PO₄ pH 7.0

50% methanol Flow Rate $: 1 \, mL/min$

Temperature : 40°C Detection : UV 280 nm Atenolol
 Metoprolol
 Timolol

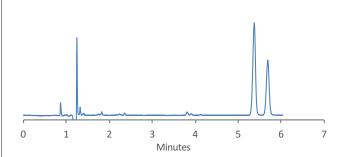


The complete coating of the SVEA Core C18 column gives excellent peaks of highly basic compounds.

Cis/trans-isomers of 9-octadecenoic acid

Column : SVEA Core C18 150x4.6 mm **Mobile Phase** : 10% 0.5% Formic acid in $\ensuremath{H_2O}$

90% acetonitrile : 1 mL/min Flow Rate : 40°C Temperature Detection : UV 215 nm



Base-line separation between the cis/trans-isomeric acids.

Silica : Type B Silica Particle Size : 2.6 µm

Surface Area $: 110-150 \text{ m}^2/\text{g}$ Pore Size : 80-100 Å Pore Volume : 0.25-0.32 mL/g

Carbon Load : 4-5%

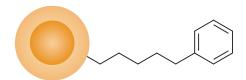
: $2.1 \, \mu mol/m^2$ Ligand Density

Bonded Phase : Phenyl hexyl silane

End-capping : Proprietary

USP Code : L11 : 1.5-9 pH Range

- Orthogonal chemistry combined with core shell technology
- Can be used in aquous conditions
- Recommended for separation of aromatics and/or polar analytes



Combining Core shell technology with orthoganal ligand chemistry. The aromatic ring will interact with aromatic and polar compounds, through its π -system.

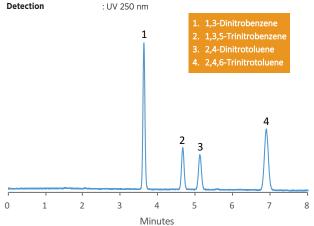
Components of explosives

: SVEA Core Phenyl Hexyl 100x4.6 mm Column

: 60%water **Mobile Phase**

40% acetonitrile

Flow Rate :1 mL/min Temperature : 40°C Detection



Separation of structurally similar aromatic compounds using SVEA Core Phenyl Hexyl column.

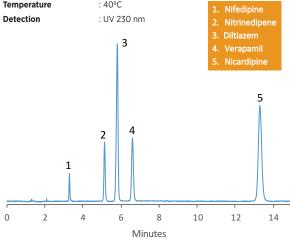
Calcium antagonists

: SVEA Core Phenyl Hexyl 100x4.6 mm Column

Mobile Phase : 30% 10 mM $\rm KH_2PO_4$ pH 6.8

70% methanol

Flow Rate :1 mL/min Temperature : 40°C



Excellent chromatografical performance is exhibited by the SVEA Core Phenyl Hexyl column.

Order Information SVEA Core Phenyl Hexyl Columns

		Column Length				
Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
2.6 μm	2.1	F232V6	F252V6	F262V6	-	
	3.0	F233V6	F253V6	F263V6	-	
	4.6	F235V6	F255V6	F265V6	-	



SVEA Columns

			Column Length				
Bonded Phase	Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm	
C 18 Gold	5 μm	3.0	A533V1	A553V1	A563V1	A583V1	
		4.6	A535V1	A555V1	A565V1	A585V1	
	3.5 μm	2.1	A332V1	A352V1	A362V1	-	
		3.0	A333V1	A353V1	A363V1	A383V1	
		4.6	A335V1	A355V1	A365V1	A385V1	
C 10 On al	5 μm	3.0	A533V3	A553V3	A563V3	A583V3	
C 18 Opal		4.6	A535V3	A555V3	A565V3	A585V3	
	3.5 µm	2.1	A332V3	A352V3	A362V3	-	
		3.0	A333V3	A353V3	A363V3	A383V3	
		4.6	A335V3	A355V3	A365V3	A385V3	
	5 μm	3.0	B533V1	B553V1	B563V1	B583V1	
08		4.6	B535V1	B555V1	B565V1	B585V1	
	3.5 µm	2.1	B332V1	B352V1	B362V1	-	
		3.0	B333V1	B353V1	B363V1	B383V1	
		4.6	B335V1	B355V1	B365V1	B385V1	
24	5 μm	3.0	C533V1	C553V1	C563V1	C583V1	
. 4		4.6	C535V1	C555V1	C565V1	C585V1	
	3.5 μm	2.1	C332V1	C352V1	C362V1	-	
		3.0	C333V1	C353V1	C363V1	C383V1	
		4.6	C335V1	C355V1	C365V1	C385V1	
h Hex	5 μm	3.0	F533V1	F553V1	F563V1	F583V1	
		4.6	F535V1	F555V1	F565V1	F585V1	
	3.5 μm	2.1	F332V1	F352V1	F362V1	-	
		3.0	F333V1	F353V1	F363V1	F383V1	
		4.6	F335V1	F355V1	F365V1	F385V1	
PFP	5 μm	3.0	P533V1	P553V1	P563V1	P583V1	
		4.6	P535V1	P555V1	P565V1	P585V1	
	3.5 μm	2.1	P332V1	P352V1	P362V1	-	
		3.0	P333V1	P353V1	P363V1	P383V1	
		4.6	P335V1	P355V1	P365V1	P385V1	
Cyano	5 μm	3.0	Y533V1	Y553V1	Y563V1	Y583V1	
,		4.6	Y535V1	Y555V1	Y565V1	Y585V1	
	3.5 μm	2.1	Y332V1	Y352V1	Y362V1	-	
		3.0	Y333V1	Y353V1	Y363V1	Y383V1	
		4.6	Y335V1	Y355V1	Y365V1	Y385V1	

SVEA Core Columns

			Column Length			
Bonded Phase	Particle Size	Column ID (mm)	50 mm	100 mm	150 mm	250 mm
C 18	2.6 μm	2.1	A232V6	A252V6	A262V6	-
3.13		3.0	A233V6	A253V6	A263V6	-
		4.6	A235V6	A255V6	A265V6	-
Ph Hex	2.6 μm	2.1	F232V6	F252V6	F262V6	-
THICK		3.0	F233V6	F253V6	F263V6	-
		4.6	F235V6	F255V6	F265V6	-

Guard Columns - 3 units/pack

Bonded Phase	Particle Size	Column ID (mm)	Article number
C 18	5 μm	2.0	A502V1
		4.0	A504V1
	3.5 μm	2.0	A302V1
		4.0	A304V1
C8	5 μm	2.0	B502V1
		4.0	B504V1
	3.5 μm	2.0	B302V1
		4.0	B304V1
C 4	5 μm	2.0	C502V1
		4.0	C504V1
	3.5 μm	2.0	C302V1
		4.0	C304V1
Ph Hex	5 μm	2.0	F502V1
		4.0	F504V1
	3.5 μm	2.0	F302V1
		4.0	F304V1
PFP	5 μm	2.0	P502V1
		4.0	P504V1
	3.5 μm	2.0	P302V1
		4.0	P304V1
Cyano	5 μm	2.0	Y502V1
		4.0	Y504V1
	3.5 μm	2.0	Y302V1
		4.0	Y304V1

Accessories

Product	Content	Article number	
Guard Holder	Core Guard Holder 5 units/pack	V000V1	
Core Guard Holder	Guard Holder 1 unit/pack	V000V6	
Core Guard Filter	Guard Holder 1 unit/pack	X000V6	
Demo Kit	Demo Kit 3 units/pack	D000V1	

