

TELOS

Silica-based Solid Phase Extraction Columns



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Scientific Experts

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Overview

This catalogue provides an overview of the latest TELOS® Silica-based SPE Products available from Kinesis. The comprehensive range includes SPE sorbents from each of the main retention mechanisms: Non-polar, Ion Exchange and Polar SPE.

High Quality Products

The individual components of TELOS Silica-based SPE Columns are tested at each stage of manufacture to provide a high purity product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching of impurities from the finished SPE column. Tubes and frits are cleaned to levels that meet today's analytical challenges /detection limits and the assembled SPE column is tested for purity before being packaged. The columns are packaged in sealed foil bags to protect them from moisture and environmental contaminants.

Sorbents and Configurations

The products listed are a selection of the complete range TELOS Sample Preparation Products. Kinesis also has mixed-mode and polymer-based products. To find out more, visit the Kinesis web site.

If there are specific requirements for any sorbents not listed, or an alternative sorbent mass/reservoir volume configuration, please contact Kinesis.

For other TELOS Sample Preparation Products from Kinesis, visit the Products section of kinesis.co.uk

Technical Centre

Kinesis has a series of documents to support the range of TELOS Sample Preparation Products. These technical resources provide guidance for various aspects of solid phase extraction, including the general principles and method development.

Visit the Resources section of the Kinesis website.

TELOS Non-Polar Silica-based SPE Columns



Non-polar (reversed phase) SPE remains the most popular SPE approach in today's analytical laboratories, due to its applicability to a wide range of compounds. Provided the analytes have sufficient non-polar (hydrophobic) character, extraction of single compounds or multiple analyte suites is achieved.

The TELOS range covers the most popular non-polar SPE sorbents. The surface chemistry is optimised to provide the correct balance of non-polar and silanol interactions, with endcapped sorbents available for those applications requiring minimal secondary silanol interactions to enhance compound retention and elution.

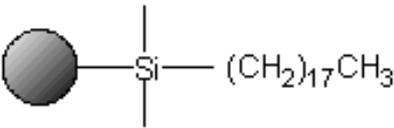
TELOS C18 (Octadecyl)

	Functional Group	Octadecyl (C18)
	Average Particle Size	50µm
	Pore Diameter	70Å
	Endcapped	No
	Carbon Loading %	17.5%
Analytes	Wide ranging Non-polar character	
Matrix	Aqueous	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Polar / Weak Cation Exchange	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
200-100M-001T	TELOS C18 100mg/1ml SPE Columns	100
200-100M-003T	TELOS C18 100mg/3ml SPE Columns	50
200-200M-003T	TELOS C18 200mg/3ml SPE Columns	50
200-500M-003T	TELOS C18 500mg/3ml SPE Columns	50
200-500M-006T	TELOS C18 500mg/6ml SPE Columns	30
200-001G-006T	TELOS C18 1g/6ml SPE Columns	30
200-002G-015T	TELOS C18 2g/15ml SPE Columns	20

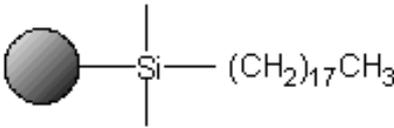
TELOS C18(EC) (Octadecyl, Endcapped)

	Functional Group	Octadecyl (C18)
	Average Particle Size	50µm
	Pore Diameter	70Å
	Endcapped	Yes
	Carbon Loading %	18%
Analytes	Wide ranging Non-polar character	
Matrix	Aqueous	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar / Weak Cation Exchange secondary interactions	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
210-050M-001T	TELOS C18(EC) 50mg/1ml SPE Columns	100
210-100M-001T	TELOS C18(EC) 100g/1ml SPE Columns	100
210-100M-003T	TELOS C18(EC) 100mg/3ml SPE Columns	50
210-200M-003T	TELOS C18(EC) 200mg/3ml SPE Columns	50
210-500M-003T	TELOS C18(EC) 500mg/3ml SPE Columns	50
210-500M-006T	TELOS C18(EC) 500mg/6ml SPE Columns	30
210-001G-006T	TELOS C18(EC) 1g/6ml SPE Columns	30
210-002G-015T	TELOS C18(EC) 2g/15ml SPE Columns	20

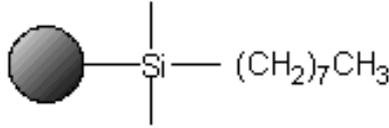
TELOS C18 AQ(EC) (Octadecyl, Endcapped)

	Functional Group	Octadecyl (C18)
	Average Particle Size	50µm
	Pore Diameter	60Å
	Endcapped	Yes
	Carbon Loading %	18%
Analytes	Wide ranging Non-polar character	
Matrix	Large volume aqueous samples	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar / Weak Cation Exchange secondary interactions	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
212-500M-006T	TELOS C18 AQ(EC) 500g/6ml SPE Columns	30
212-001G-006T	TELOS C18 AQ(EC) 100mg/1ml SPE Columns	30

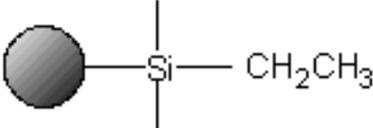
TELOS C8(EC) (Octyl, Endcapped)

	Functional Group	Octyl (C8)
	Average Particle Size	50µm
	Pore Diameter	70Å
	Endcapped	Yes
	Carbon Loading %	9%
Analytes	Wide ranging Non-polar character	
Matrix	Aqueous	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar / Weak Cation Exchange secondary interactions	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
230-100M-001T	TELOS C8(EC) 100mg/1ml SPE Columns	100
230-100M-003T	TELOS C8(EC) 100mg/3ml SPE Columns	50
230-200M-003T	TELOS C8(EC) 200mg/3ml SPE Columns	50
230-500M-003T	TELOS C8(EC) 500mg/3ml SPE Columns	50

TELOS C2(EC) (Ethyl, Endcapped)

	Functional Group	Ethyl (C2)
	Average Particle Size	50µm
	Pore Diameter	70Å
	Endcapped	Yes
	Carbon Loading %	6%
Analytes	Wide ranging Non-polar character	
Matrix	Aqueous	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar / Weak Cation Exchange secondary interactions	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
250-100M-001T	TELOS C2(EC) 100mg/1ml SPE Columns	100
250-100M-003T	TELOS C2(EC) 100mg/3ml SPE Columns	50
250-200M-003T	TELOS C2(EC) 200mg/3ml SPE Columns	50
250-500M-003T	TELOS C2(EC) 500mg/3ml SPE Columns	50

TELOS Ion Exchange Silica-based SPE Columns



A series of TELOS Ion Exchange Sorbents are available for selective extraction of ionisable analytes from aqueous and non-aqueous samples. The TELOS SPE Column Range includes strong and weak cation exchange sorbents for extraction of basic compounds and strong and weak anion exchange sorbents for acidic compounds.

TELOS Cation Exchange Silica-based SPE Columns

TELOS Cation Exchange Sorbents are used to extract basic analytes with a positive charge (depending on pH conditions) from aqueous samples. These sorbents can also be used with non-polar solvent extracts.

TELOS SCX (Ethylbenzene Sulfonic Acid)

	Functional Group	Ethylbenzene Sulfonic Acid (Free Acid)
	Average Particle Size	50µm
	Pore Diameter	70Å
	pK_a	N/A
	Exchange Capacity	0.6meq/g
Analytes	Ionisable basic analytes with pK range 8 - 12	
Matrix	Aqueous generally, can also be used with non-polar solvents for polar interactions	
Retention Mechanism	Primary: Strong Cation Exchange Secondary: Polar / Weak Cation Exchange	

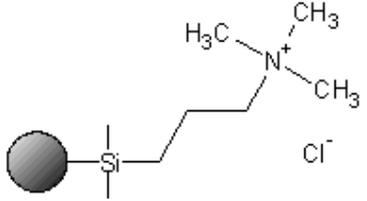
Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
310-050M-001T	TELOS SCX 50mg/1ml SPE Columns	100
310-100M-001T	TELOS SCX 100mg/1ml SPE Columns	100
310-100M-003T	TELOS SCX 100mg/3ml SPE Columns	50
310-200M-003T	TELOS SCX 200mg/3ml SPE Columns	50
310-500M-003T	TELOS SCX 500mg/3ml SPE Columns	50
310-500M-006T	TELOS SCX 500mg/6ml SPE Columns	30
310-001G-006T	TELOS SCX 1g/6ml SPE Columns	30

TELOS Anion Exchange Silica-based SPE Columns

TELOS Anion Exchange Sorbents are used to extract acidic analytes with a negative charge (depending on pH conditions) from aqueous fluid samples. These sorbents can also be used with non-polar solvents.

TELOS SAX (Quaternary Amine)

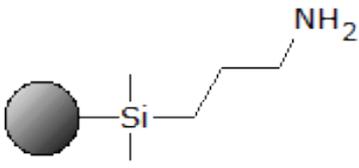
	Functional Group	Quaternary Amine (Chloride Counter Ion)
	Average Particle Size	50µm
	Pore Diameter	70Å
	pK_a	N/A
	Exchange Capacity	0.4meq/g
Analytes	Ionisable acidic analytes with pK range 2 - 6	
Matrix	Aqueous generally, can also be used with non-polar solvents for polar interactions	
Retention Mechanism	Primary: Strong Anion Exchange Secondary: Polar / Weak Cation Exchange	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
400-050M-001T	TELOS SAX 50mg/1ml SPE Columns	100
400-100M-001T	TELOS SAX 100mg/1ml SPE Columns	100
400-100M-003T	TELOS SAX 100mg/3ml SPE Columns	50
400-200M-003T	TELOS SAX 200mg/3ml SPE Columns	50
400-500M-003T	TELOS SAX 500mg/3ml SPE Columns	50
400-500M-006T	TELOS SAX 500mg/6ml SPE Columns	30
400-001G-006T	TELOS SAX 1g/6ml SPE Columns	30

TELOS NH2 (Aminopropyl)

This sorbent can be used with aqueous sample matrices for the weak anion exchange of strongly acidic analytes or those with multiple acidic groups. The surface charge of the sorbent can be controlled by modifying the pH of the matrix, therefore allowing retention and elution of strongly acidic analytes that would otherwise be difficult to elute from a strong anion exchange sorbent.

	Functional Group	Aminopropyl
	Average Particle Size	50µm
	Pore Diameter	70Å
	pK_a	N/A
	Exchange Capacity	0.4meq/g
Analytes	Strong acidic analytes and those with multiple acidic groups	
Matrix	Aqueous generally, can also be used with non-polar solvents for polar SPE extractions	
Retention Mechanism	Primary: Weak Anion Exchange Secondary: Polar / Weak Cation Exchange	

Ordering Information

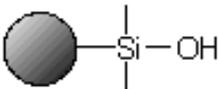
PART NUMBER	DESCRIPTION	PACK SIZE
130-100M-001T	TELOS NH2 100mg/1ml SPE Columns	100
130-100M-003T	TELOS NH2 100mg/3ml SPE Columns	50
130-200M-003T	TELOS NH2 200mg/3ml SPE Columns	50
130-500M-003T	TELOS NH2 500mg/3ml SPE Columns	50
130-500M-006T	TELOS NH2 500mg/6ml SPE Columns	30
130-001G-006T	TELOS NH2 1g/6ml SPE Columns	30

TELOS Normal Phase (Polar) Silica-based SPE Columns



Clean-up of matrices based on non-polar solvents is achieved using normal phase (polar) SPE columns, such as silica and amino sorbents. They can either be used to retain the analytes of interest, or to remove polar interferences from the sample. Speciality sorbents like FLORISIL® (PR Grade) are popular choices when a different selectivity to that provided by silica-based sorbents is required.

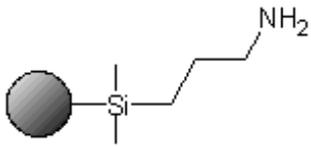
TELOS SILICA (Unmodified)

	Functional Group	Unmodified Silica
	Average Particle Size	50µm
	Pore Diameter	70Å
Analytes	Analytes with polar character	
Matrix	Non-aqueous / Non-polar solvents	
Retention Mechanism	Primary: Polar (Normal Phase)	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
100-100M-001T	TELOS SILICA 100mg/1ml SPE Columns	100
100-100M-003T	TELOS SILICA 100mg/3ml SPE Columns	50
100-200M-003T	TELOS SILICA 200mg/3ml SPE Columns	50
100-500M-003T	TELOS SILICA 500mg/3ml SPE Columns	50
100-500M-006T	TELOS SILICA 500mg/6ml SPE Columns	30
100-001G-006T	TELOS SILICA 1g/6ml SPE Columns	30
100-002G-015T	TELOS SILICA 2g/15ml SPE Columns	20

TELOS NH2 (Aminopropyl)

	Functional Group	Aminopropyl
	Average Particle Size	50µm
	Pore Diameter	70Å
Analytes	Contain polar groups	
Matrix	Non-polar solvent	
Retention Mechanism	Primary: Polar	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
130-100M-001T	TELOS NH2 100mg/1ml SPE Columns	100
130-100M-003T	TELOS NH2 100mg/3ml SPE Columns	50
130-200M-003T	TELOS NH2 200mg/3ml SPE Columns	50
130-500M-003T	TELOS NH2 500mg/3ml SPE Columns	50
130-500M-006T	TELOS NH2 500mg/6ml SPE Columns	30
130-001G-006T	TELOS NH2 1g/6ml SPE Columns	30

TELOS Florisil® PR Grade (Magnesium Silicate)

$Mg_3Si_4O_{10}(OH)_2$	Functional Group	Magnesium Silicate
	Average Particle Size	125-150µm
	Pore Diameter	70Å
Analytes	Analytes with polar character	
Matrix	Non-aqueous / Non-polar solvents	
Retention Mechanism	Primary: Polar (Normal Phase)	

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
150-500M-003T	TELOS FLORISIL 500mg/3ml SPE Columns	50
150-001G-006T	TELOS FLORISIL 1g/6ml SPE Columns	30

Global Kinesis

Kinesis is a leading international supplier of chromatography, liquid handling, sample storage and medicinal chemistry consumables and equipment. The company's products are used extensively in the pharmaceutical, environmental, forensic, life sciences, food, biotechnology and academic markets.

A privately owned company, Kinesis was established in 1997 and offers its customers a range of first class products, services and solutions. Kinesis has expanded its reach internationally with subsidiary offices in Australia, Germany and the USA. A network of international distributors ensures the Kinesis range of products is available on a worldwide basis.

Kinesis work with industry leading manufacturers, many on a global exclusive or preferred supplier basis. Key suppliers to the Kinesis Group include AccuStandard, Cerilliant, ChromSword, Corning, Diba Industries, GL Sciences, Hamamatsu, Heraeus, HTL, IDEX Health & Science, Lipomed, Micronic, Microsaic, Parker domnick hunter, SGE Analytical Science, Tosoh Bioscience and YMC.

The Kinesis UK facility houses state of art processes for the pre-alignment of deuterium lamps. Approved by the world's two leading lamp manufacturers, Hamamatsu and Heraeus, these accredited processes have helped Kinesis become the world's largest 3rd party provider of pre-aligned deuterium lamps. Pipette service and calibration suites at both the UK and German locations offer back to base or field-based pipette service and calibration. The UK facility is UKAS accredited, offering services in line with today's market requirements.

KLTD-1536-0915



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sales@kinesis-group.com kinesis-group.com

TELOS[®] ENV

Solid Phase Extraction Columns

Polymeric Sorbent for Polar, Water Soluble Analytes

- Styrene Divinylbenzene Copolymer
- Optimised particle size distribution for reproducible flow and fines-free extracts
- High surface area provides reproducible retention of polar analytes
- Column formats for small and large volume samples

TELOS[®] ENV SPE Columns from Kinesis provide an ideal solution for the extraction of water soluble organic compounds from aqueous matrices. A combination of optimised chemistry and excellent flow characteristics means TELOS ENV SPE Columns provide reliable extraction of a wide range of analytes from a variety of aqueous samples.



TELOS[®] ENV SPE Columns

High Reproducible Recoveries

The surface of the DVB polymeric sorbent has been optimised to provide the required levels of non-polar interactions, water-wettable character and surface area to extract a range of water soluble compounds from aqueous samples.

This high surface area (~900 m²/g) provides excellent retention of very polar analytes including Phenols and Phenoxyacid Herbicides from environmental samples, and drug metabolites from biological fluids.

Kinesis has a range of Application Notes detailing the use of TELOS ENV SPE Columns. Visit your local Kinesis website at the bottom of the page and follow the Resources link.

Excellent Flow Characteristics

Whatever the sample type or volume, consistent flow characteristics from column-to-column can be pivotal to obtaining reliable results. The surface chemistry, particle size distribution and packing technique are carefully controlled to provide optimum SPE column performance, whether dealing with large volume or viscous sample matrices.

No Extract Contamination

The individual components of the TELOS ENV SPE Columns are tested at each stage of manufacture to provide a high quality product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching from the finished SPE column. Tubes and frits are cleaned to a high standard and the assembled SPE column is tested for purity before being packaged. The columns are packaged in sealed foil bags to protect them from moisture and other environmental contaminants.

Environmental Samples

For large volume environmental water samples (>500ml), the TELOS ENV 200mg configurations are recommended. They provide the capacity that some large volume samples demand, and flexibility in choosing the correct column dimensions for your sample flow requirements. For smaller sample volumes, choose the 100mg column.

Biological Fluids

TELOS ENV 100mg/3ml columns are the ideal configuration for biological fluids applications, including the extraction of polar drug metabolites from biological fluids such as urine and plasma. For larger sample volumes, the 200mg/3ml columns provide additional capacity. The 200mg/6ml configuration may also be useful for particularly viscous samples where additional sample dilution is necessary to provide adequate sample flow.

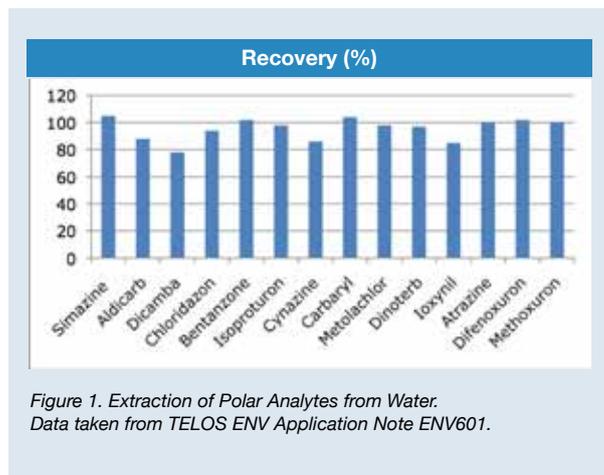


Figure 1. Extraction of Polar Analytes from Water.
Data taken from TELOS ENV Application Note ENV601.

PART NUMBER	DESCRIPTION	PACK SIZE
690-100M-003T	TELOS ENV 100mg/3ml SPE Columns	50
690-200M-003T	TELOS ENV 200mg/3ml SPE Columns	50
690-200M-006T	TELOS ENV 200mg/6ml SPE Columns	30

Please contact Kinesis for additional information about other configurations.

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 **Kinesis**
Scientific Experts

sales@kinesis-group.com kinesis-group.com

TELOS *neo*

*Polymeric Solid Phase
Extraction Columns*



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TELOS *neo*™ Polymeric SPE Columns and 96-well Plates is a range of sample preparation products for the extraction of compounds from aqueous sample matrices. TELOS *neo* sorbents support the five common retention mechanisms used in today's analytical laboratory:

- Non-polar (TELOS *neo* PRP (Polar-modified Reversed Phase))
- Mixed-mode Cation Exchange (TELOS *neo* PCX)
- Mixed-mode Weak Cation Exchange (TELOS *neo* WCX)
- Mixed-mode Anion Exchange (TELOS *neo* PAX)
- Mixed-mode Weak Anion Exchange (TELOS *neo* WAX)

TELOS *neo* SPE Products provide all the advantages of polymeric sorbents, including simplified method development, wide applicability and are not affected by drying out. The combination of the water-wettable optimised surface chemistry, high surface area and pH stability ensures high reproducible recoveries for a wide range of analytes.

Efficient Method Development

Polymeric SPE sorbents are commonly chosen for their ease of use and robust nature, due to the absence of surface silanol interactions, excellent flow characteristics and pH stability. Each TELOS *neo* chemistry is accompanied by a generic method to further ensure method development time is minimised.

High Reproducible Recoveries

TELOS *neo* SPE Products provide high and reproducible recoveries for a wide range of analytes, including acidic, neutral, basic and multi-charged analytes. If simultaneous extraction of acidic, basic and neutral analytes, or selective extraction of a particular analyte class is required, the relevant sorbent can be chosen, providing the optimum results for the given application.

High Capacity Sorbent

The high surface area and capacity of TELOS *neo* SPE Sorbents provide more reliable retention characteristics compared to silica-based sorbents. This higher capacity encourages the use of smaller sorbent masses, therefore reducing elution volumes and evaporation/reconstitution steps.

Excellent Flow Characteristics

Consistent flow characteristics from column-to-column and well-to-well are important in obtaining reliable results, irrespective of the sample type or volume. The surface chemistry, particle size distribution and packing technique are carefully controlled to provide optimum SPE performance, whether processing large volume water samples or smaller more viscous sample matrices. TELOS *neo* Polymeric SPE Sorbents do not dry out during routine sample processing.

No Extract Contamination

The individual components of TELOS *neo* Polymeric SPE Products are tested at each stage of manufacture to provide a high purity product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching from the finished SPE column or 96-well plate. Tubes, plates and frits are cleaned to levels that meet today's detection limits and the assembled SPE product is tested for purity. The products are supplied in hermetically sealed foil bags to protect them from moisture and environmental contaminants.

TELOS *neo* PRP



Reversed phase (non-polar) SPE remains a popular SPE approach due to its applicability to a wide range of compounds. Provided the analytes have sufficient non-polar (hydrophobic) character, extraction of single compounds or multiple analyte suites is achieved.

TELOS *neo* PRP (Polar-modified Reversed Phase) is a water-wettable, non-polar SPE column utilising a proprietary polymeric backbone. The surface chemistry has been optimised to provide the necessary balance of non-polar interactions for retaining compounds of varying polarity, from polar metabolites to higher molecular weight analytes.

Generic Method

Sample Pre-treatment	Dilution as required
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load pre-treated sample
Interference Elution	5% v/v methanol/water
Analyte Elution	Methanol

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
SPE Columns		
600-030M-001T	TELOS <i>neo</i> PRP 30mg/1ml	100
600-060M-003T	TELOS <i>neo</i> PRP 60mg/3ml	50
600-100M-003T	TELOS <i>neo</i> PRP 100mg/3ml	50
600-200M-006T	TELOS <i>neo</i> PRP 200mg/6ml	30
600-500M-006T	TELOS <i>neo</i> PRP 500mg/6ml	30
96-well Plates		
600-010M-096P	TELOS <i>neo</i> PRP 10mg Plate	1
600-030M-096P	TELOS <i>neo</i> PRP 30mg Plate	1

Mixed-mode SPE: Dual Retention Mechanism for Cleaner Extracts

The TELOS *neo* Mixed-mode SPE Sorbents exhibit a dual retention mechanism that significantly reduces the matrix components in the final extract (compared to non-polar or ion exchange as a single retention mechanism). A rigorous interference elution profile removes matrix components such as salts, proteins, phospholipids and others. The analytes are eluted from the column with an organic solvent containing a basic or acidic modifier (depending on the SPE sorbent), which can be easily evaporated prior to reconstitution and analysis.

TELOS *neo* mixed-mode sorbents are available in the four popular chemistries; strong and weak cation exchange for the extraction of basic analytes and strong and weak anion exchange for acidic analytes.

TELOS *neo* PCX



Mixed-mode Strong Cation Exchange SPE for Basic Analyte Extraction

For selective extraction of ionisable basic analytes, choose mixed-mode cation exchange SPE. The combination of hydrophobic and strong cation exchange functional groups is optimised to ensure TELOS *neo* PCX provides a robust and reliable sample preparation approach for the extraction of a wide range of basic analytes from aqueous sample matrices including plasma, urine and hair.

Generic Method

Sample Pre-treatment	Acidify sample
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load acidified sample
Interference Elution Wash 1	2% v/v formic acid/methanol
Interference Elution Wash 2	Methanol
Analyte Elution	2-5% v/v NH ₃ /methanol

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
SPE Columns		
620-030M-001T	TELOS <i>neo</i> PCX 30mg/1ml	100
620-060M-003T	TELOS <i>neo</i> PCX 60mg/3ml	50
620-100M-003T	TELOS <i>neo</i> PCX 100mg/3ml	50
620-200M-006T	TELOS <i>neo</i> PCX 200mg/6ml	30
620-500M-006T	TELOS <i>neo</i> PCX 500mg/6ml	30
96-well Plates		
620-010M-096P	TELOS <i>neo</i> PCX 10mg Plate	1
620-030M-096P	TELOS <i>neo</i> PCX 30mg Plate	1

TELOS *neo* WCX



Mixed-mode SPE for Extraction of Strongly Basic Analytes

Elution of strongly basic analytes and quaternary amines from a strong cation exchange SPE sorbent is difficult due to the strong ionic interaction between sorbent and analyte. TELOS *neo* WCX is a mixed-mode weak cation exchange sorbent containing non-polar and weak acid functional groups. This dual retention mechanism provides the ideal environment for successful retention and elution of all basic compounds, including strong bases and quaternary amines.

Generic Method

Sample Pre-treatment	Adjust sample to low pH
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load acidified sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Elution Wash 2	Methanol
Analyte Elution	2% v/v formic acid/methanol

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
SPE Columns		
640-030M-001T	TELOS <i>neo</i> WCX 30mg/1ml	100
640-060M-003T	TELOS <i>neo</i> WCX 60mg/3ml	50
640-100M-003T	TELOS <i>neo</i> WCX 100mg/3ml	50
640-200M-006T	TELOS <i>neo</i> WCX 200mg/6ml	30
96-well Plates		
640-010M-096P	TELOS <i>neo</i> WCX 10mg Plate	1
640-030M-096P	TELOS <i>neo</i> WCX 30mg Plate	1

TELOS *neo* PAX



Mixed-mode Strong Anion Exchange Columns for Acidic Analyte Extraction

For selective extraction of ionisable acidic analytes, choose mixed-mode anion exchange SPE. The combination of hydrophobic and strong anion exchange functional groups is optimised to ensure TELOS *neo* PAX provides a robust and reliable sample preparation approach for the extraction of a wide range of acidic analytes from aqueous sample matrices including plasma, urine and hair.

Generic Method

Sample Pre-treatment	High pH for retention of acids
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load basic sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Wash 2/ Analyte Elution	Methanol
Analyte Elution	2% v/v formic acid/methanol

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
SPE Columns		
660-030M-001T	TELOS <i>neo</i> PAX 30mg/1ml	100
660-060M-003T	TELOS <i>neo</i> PAX 60mg/3ml	50
660-100M-003T	TELOS <i>neo</i> PAX 100mg/3ml	50
660-200M-006T	TELOS <i>neo</i> PAX 200mg/6ml	30
96-well Plates		
660-010M-096P	TELOS <i>neo</i> PAX 10mg Plate	1
660-030M-096P	TELOS <i>neo</i> PAX 30mg Plate	1

TELOS *neo* WAX



Mixed-mode SPE for Extraction of Strongly Acid Analytes

Elution of strongly acidic compounds from a strong anion exchange SPE sorbent is not usually possible, due to the strong ionic interaction between sorbent and analyte. TELOS *neo* WAX is a mixed-mode weak anion exchange sorbent containing non-polar and weak base functional groups. This dual retention mechanism provides the ideal environment for successful retention and elution of all acidic compounds, including strong acids.

Generic Method

Sample Pre-treatment	Adjust sample to low pH
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load acidified sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Elution Wash 2	Methanol
Analyte Elution	2-5% v/v NH ₃ /methanol

Ordering Information

PART NUMBER	DESCRIPTION	PACK SIZE
SPE Columns		
680-030M-001T	TELOS <i>neo</i> WAX 30mg/1ml	100
680-060M-003T	TELOS <i>neo</i> WAX 60mg/3ml	50
680-100M-003T	TELOS <i>neo</i> WAX 100mg/3ml	50
680-200M-006T	TELOS <i>neo</i> WAX 200mg/6ml	30
96-well Plates		
680-010M-096P	TELOS <i>neo</i> WAX 10mg Plate	1
680-030M-096P	TELOS <i>neo</i> WAX 30mg Plate	1

Method Development

Sorbent and Method Selection

TELOS *neo* SPE Products are designed with simple and effective sample preparation in mind. Rather than screening a wide range of sorbents as is often necessary with silica-based sorbents, the most appropriate TELOS *neo* SPE Column can be selected based on three simple criteria:

1. Application requirements
 - a. simultaneous extraction of multiple analytes from one sample, or
 - b. selective extraction of a particular analyte or analyte class
2. Analyte functional group(s)
3. Analyte pK_a

Once these parameters are known, the appropriate column can be selected and the associated generic method followed.

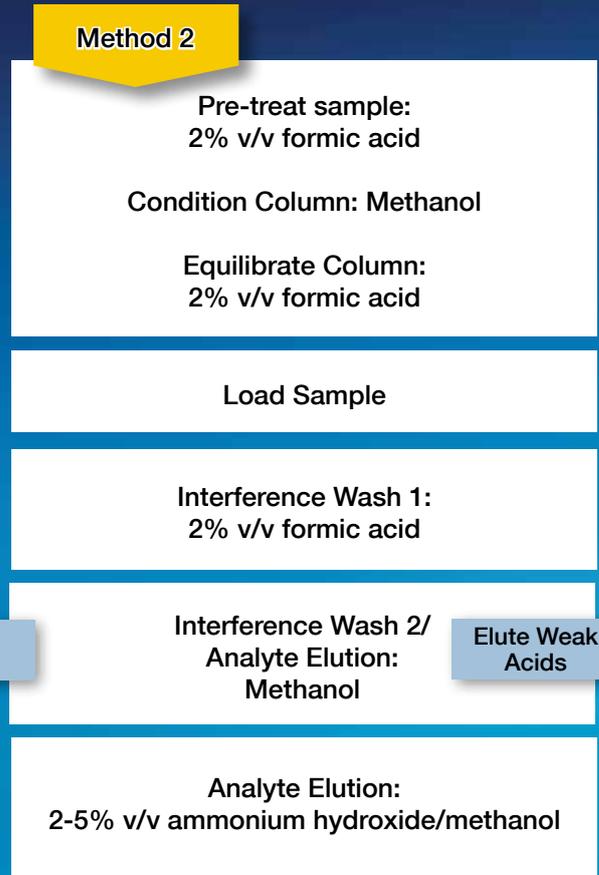
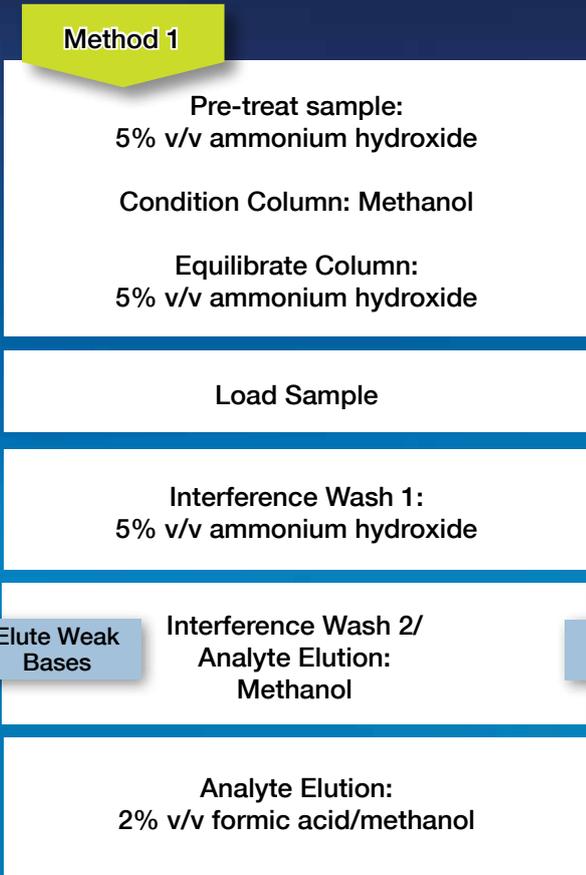
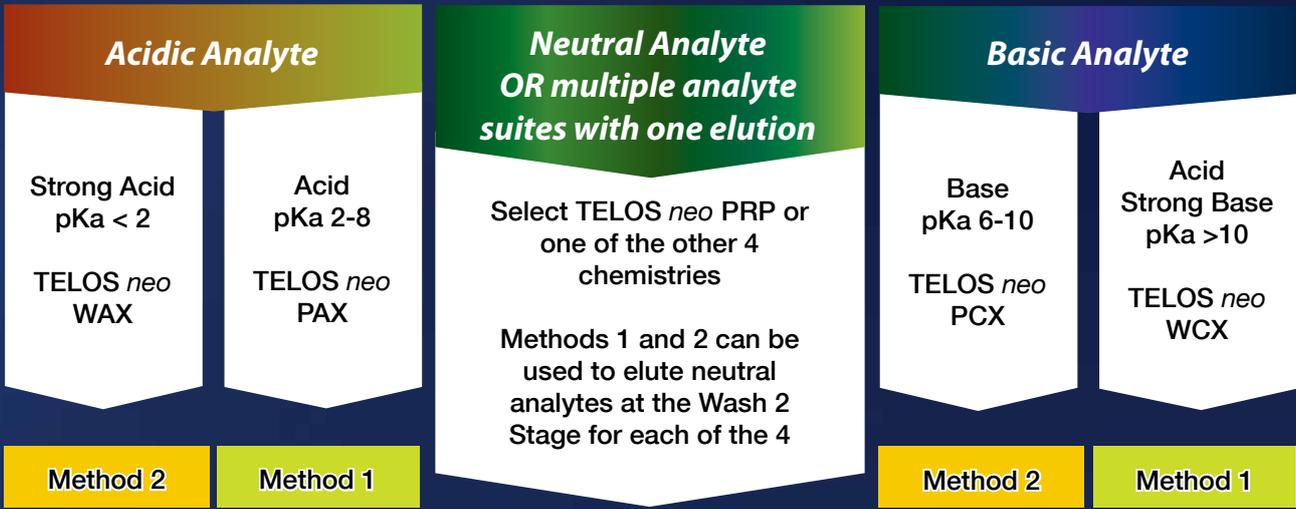
Whilst each chemistry is selective towards a given analyte class, it is possible to elute analytes of a different functional group from the sorbent (useful if fractionation of different analyte classes is required). For example, **neutral** compounds can be eluted from each of the mixed-mode sorbents at the **Interference Wash 2** step.

For the extraction of a sample containing unknown or zwitterionic analytes, or a mixture of analytes with a range of retention/elution characteristics, evaluate all five chemistries to determine the ideal sorbent and method.

Table 1. Selection of the Appropriate Sorbent Based on Application Needs

Application	TELOS <i>neo</i> PRP	TELOS <i>neo</i> PCX	TELOS <i>neo</i> WCX	TELOS <i>neo</i> PAX	TELOS <i>neo</i> WAX
Simultaneous Extraction of Acidic, Neutral and Basic Analytes	●				
Basic Ionisable Analytes		●			
Quaternary Amine or Analytes with Multiple Basic Groups			●		
Acidic Ionisable Analytes				●	
Strong Acid or Analytes with Multiple Acidic Groups					●
Fractionation of Acidic, Neutral and Basic Analytes		●	●	●	●
Zwitterionic Analytes	●	●	●	●	●

Method Development Flowchart





Global Kinesis

Kinesis is a leading international supplier of chromatography, liquid handling, sample storage and medicinal chemistry consumables and equipment. The company's products are used extensively in the pharmaceutical, environmental, forensic, life sciences, food, biotechnology and academic markets.

A privately owned company, Kinesis was established in 1997 and offers its customers a range of first class products, services and solutions. Kinesis has expanded its reach internationally with subsidiary offices in Australia, Germany and the USA. A network of international distributors ensures the Kinesis range of products is available on a worldwide basis.

Kinesis work with industry leading manufacturers, many on a global exclusive or preferred supplier basis. Key suppliers to the Kinesis Group include AccuStandard, Cerilliant, ChromSword, Corning, Diba Industries, GL Sciences, Hamamatsu, Heraeus, HTL, IDEX Health & Science, Lipomed, Micronic, Microsaic, Parker domnick hunter, SGE Analytical Science, Tosoh Bioscience and YMC.

The Kinesis UK facility houses state of art processes for the pre-alignment of deuterium lamps. Approved by the world's two leading lamp manufacturers, Hamamatsu and Heraeus, these accredited processes have helped Kinesis become the world's largest 3rd party provider of pre-aligned deuterium lamps. Pipette service and calibration suites at both the UK and German locations offer back to base or field-based pipette service and calibration. The UK facility is UKAS accredited, offering services in line with today's market requirements.

KLTD-1536-0915



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sales@kinesis-group.com kinesis-group.com

TELOS[®] H-CX

Solid Phase Extraction Columns

For Basic Drug Extraction from Biological Fluids

- Mixed-mode silica-based chemistry provides cleaner extracts
- Single particle chemistry ensures robust extraction procedures
- Selectively extracts a wide range of basic drugs from biological fluids, hair and other matrices
- Can be used for screening basic, acidic and neutral drugs
- Suitable for a range of applications in forensic/toxicology and clinical analysis

TELOS[®] H-CX SPE Columns from Kinesis are mixed-mode columns for the extraction of basic drugs from biological fluids. The hydrophobic and strong cation exchange functional groups are optimised to ensure TELOS H-CX SPE Columns provide a robust and reliable sample preparation approach for the extraction of a wide range of basic drugs from sample matrices including urine, blood and hair.



TELOS[®] H-CX SPE Columns

High Reproducible Recoveries

The surface chemistry has been optimised to provide the required levels of non-polar and cation exchange interactions, without compromising the applicability to a wide range of basic compounds. Due to the close proximity of both functional groups (on one particle), TELOS H-CX SPE Columns provide an efficient analyte transfer from the non-polar to ion exchange sites.

TELOS H-CX SPE Columns are ideal for confirmation analysis of the most common Drugs of Abuse (DOA) classes, including those listed by NIDA/SAMHSA. The mixed-mode columns are also suitable for DOA or toxicology screening applications, where different drug classes of differing functionalities are extracted from one sample.

Kinesis has a range of Application Notes detailing the use of TELOS H-CX SPE Columns. To download, visit your local Kinesis website shown at the bottom of the page and follow the Resources link.

Excellent Flow Characteristics

Whatever the sample type or volume, consistent flow characteristics from column-to-column are pivotal to obtaining reliable results. The particle size distribution and packing technique are carefully controlled to provide optimum SPE column performance, whether dealing with blood, tissue or urine samples.

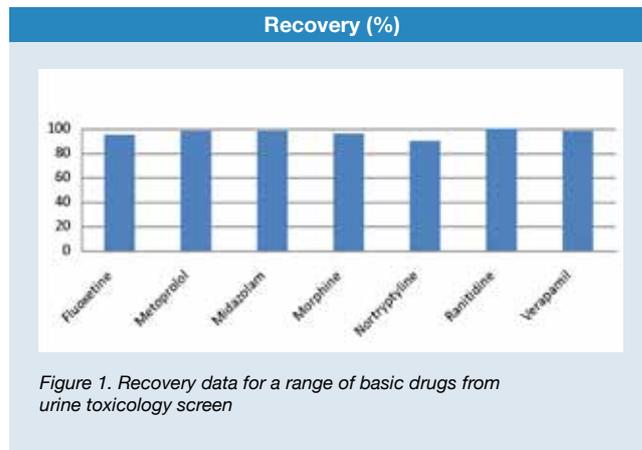
No Extract Contamination

The individual components of the TELOS H-CX SPE Columns are tested at each stage of manufacture to provide a high quality product. Each batch of sorbent is cleaned after manufacturing, so there is no leaching from the finished SPE column. Tubes and frits are cleaned to a high standard and the assembled SPE column is tested for purity before being packaged. The columns are sealed to protect them from moisture and other environmental contaminants.

Ordering Information

Kinesis offers a range of configurations to suit all common sample types and volumes. The 130 and 300mg columns are the formats of choice for drugs of abuse extraction and confirmation analysis. All configurations are compatible with manual and automated processing.

PART NUMBER	DESCRIPTION	PACK SIZE
500-050M-001T	TELOS H-CX 50mg/1ml	100
500-130M-003T	TELOS H-CX 130mg/3ml	50
500-200M-003T	TELOS H-CX 200mg/3ml	50
500-300M-003T	TELOS H-CX 300mg/3ml	50
500-300M-006T	TELOS H-CX 300mg/6ml	30



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 **Kinesis**
Scientific Experts

sales@kinesis-group.com kinesis-group.com