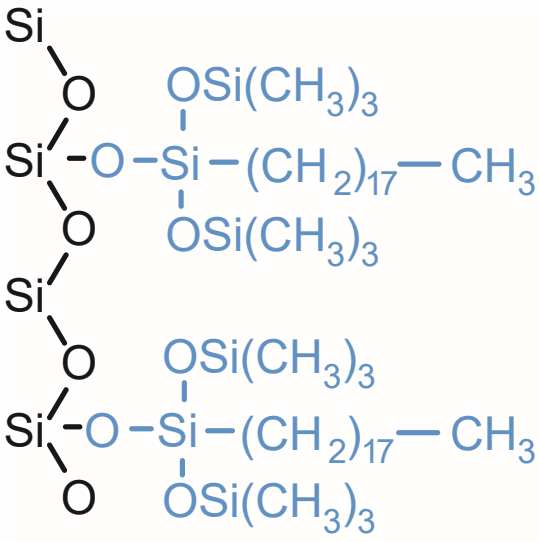
HYDROPHOBIC EXTRACTION SORBENTS

This sorbent is composed of a silica backbone bonded with hydrocarbon chains. It is used to extract compounds which exhibit non-polar or neutral characteristics out of complex matrices. The C18 phase is the most widely used for non-polar interactions because of its non-selective nature; C18 will extract a large number of compounds with differing chemical properties. To enhance selectivity, UCT offers a variety of hydrophobic sorbents. Several chain configurations are available as well as endcapped and unendcapped versions.

Example of a Hydrophobic Phase

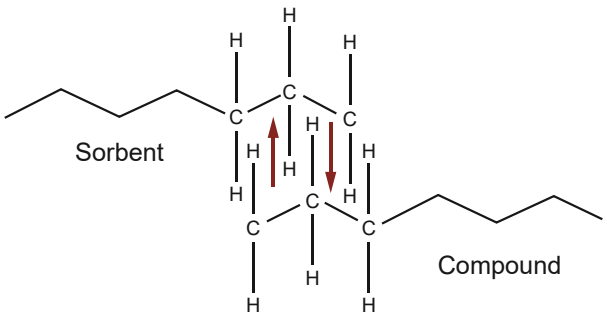


One can extract alkanes, alkenes, aromatic and neutral compounds using CLEAN-UP® sorbents. These compounds are washed with aqueous solvent with some polar organic solvent included. The compounds are then eluted with solvent ranging from non-polar to polar organic solvents depending upon the analyte.

MECHANISM OF HYDROPHOBIC BONDING

Compounds are retained by non-polar interactions from polar solvents or matrix environments. They are bound by dispersion forces / van de Waals forces. Elution, or disruption, of the non-polar interactions is achieved by solvents or solvent mixtures with sufficient non-polar characteristics. Some polar solvents, such as acetonitrile have enough non-polar characteristics to disrupt nonpolar binding causing the elution of a compound from the sorbent. Methanol can be used as well, although it should be noted that it will take off both polar and non-polar analytes of interest as well as interferences.

Example of a Hydrophobic Bonding

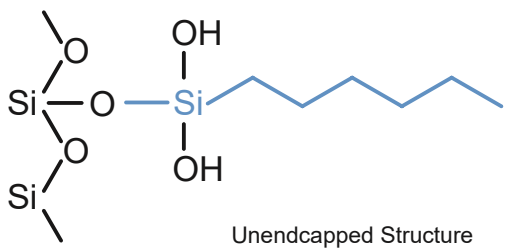


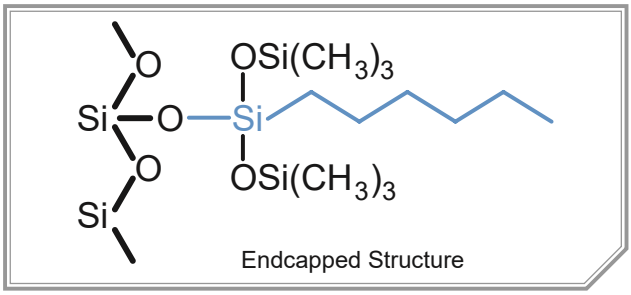
Hydrophobic Sorbents & Structures

Sorbent	Structure
C2 Ethyl	$-SiCH_2CH_3$
C4 n-Butyl	$-Si(CH_2)_3CH_3$
C8 Octyl	$-Si(CH_2)_7CH_3$
C18 Octadecyl	$-Si(CH_2)_{17}CH_3$
C30 Tricontyl	$-Si(CH_2)_{29}CH_3$
Cyclohexyl	-Si 
Phenyl	-Si 

ENDCAPPED VS. UNENDCAPPED

Bonded phases are manufactured by the reaction of organosilanes with activated silica. During the polymerization reaction of carbon chains to the silica backbone, a very stable silyl ether linkage forms. Our unendcapped columns allow hydroxyl sites to remain, thus making these columns slightly hydrophilic. In order to decrease this slight polarity, these hydroxyl sites are deactivated. Proprietary bonding techniques ensure that these sites are 100% reacted, leading to a complete endcapping. Because there are no hydroxyl sites left, our endcapped columns are more hydrophobic than our unendcapped columns.





CLEAN-UP®
C2, ETHYL SORBENT

Organic Loading = 6.2%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	100	100	YES	CEC02111
1	100	100	NO	CUC02111
3	200	50	YES	CEC02123
3	200	50	NO	CUC02123
3	500	50	NO	CUC02153
6	500	30	YES	CEC02156
6	1000	30	YES	CEC021M6
10	100	50	YES	CEC0211Z

CLEAN-UP®
C4, n-BUTYL SORBENT

Organic Loading = 8.5%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	100	100	YES	CECN4111
3	200	50	YES	CECN4123
6	500	50	YES	CECN4156
6	1000	30	YES	CECN41M6
75	10000	10	YES	CECN4110M75

CLEAN-UP®
C8, OCTYL SORBENT

Organic Loading = 11.1%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	50	100	YES	CEC081L1
1	50	100	NO	CUC081L1
1	100	100	YES	CEC08111
3	50	50	YES	CEC081L3
3	50	50	NO	CUC081L3
3	100	50	YES	CEC08113
3	100	50	NO	CUC08113
3	200	50	YES	CEC08123
3	200	50	NO	CUC08123
3	500	50	YES	CEC08153
3	500	50	NO	CUC08153
6	500	50	YES	CEC08156
6	500	50	NO	CUC08156
6	1000	30	YES	CEC081M6
6	1000	30	NO	CUC081M6
10	100	50	YES	CEC0811Z
10	200	50	YES	CEC0812Z
10	500	50	YES	CEC0815Z
15	2000	20	YES	CEC0812M15
25	5000	20	YES	CEC0815M25
75	10000	10	YES	CEC08110M75

CLEAN-UP®
C18, OCTADECYL SORBENT

Organic Loading = 21.5%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	50	100	YES	CEC181L1
1	50	100	NO	CUC181L1
1	100	100	YES	CEC18111
1	100	100	NO	CUC18111
3	50	50	YES	CEC181L3
3	50	50	NO	CUC181L3
3	100	50	YES	CEC18113
3	100	50	NO	CUC18113
3	200	50	YES	CEC18123
3	200	500	YES	CEC18123-D
3	200	50	NO	CUC18123
3	500	50	YES	CEC18153
3	500	50	NO	CUC18153
3	1000	50	NO	CUC181M3
6	200	50	YES	CEC18126
6	500	50	YES	CEC18156
6	500	50	NO	CUC18156
6	500	500	NO	CUC18156-D
6	1000	30	YES	CEC181M6
6	1000	30	NO	CUC181M6
6	2000	30	YES	CEC1812M6
10	100	50	YES	CEC1811Z
10	100	50	NO	CUC1811Z
10	200	50	YES	CEC1812Z
10	200	50	NO	CUC1812Z
10	500	50	YES	CEC1815Z
10	500	50	NO	CUC1815Z
15	2000	20	YES	CEC1812M15
15	2000	20	NO	CUC1812M15
25	5000	20	YES	CEC1815M25
25	5000	20	NO	CUC1815M25

WELL PLATES					
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Endcapped	Part Number
96	50	1	NO	YES	WSHCEC18105
96	100	1	NO	YES	WSHCEC1811
96	100	1	NO	NO	WSHCUC1811
96	200	1	NO	YES	WSHCEC1812

CLEAN-UP®
C30, TRICONTYL SORBENT

Organic Loading = 20.0%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	100	100	YES	CEC30111
3	100	50	YES	CEC30113
3	200	50	YES	CEC30123
6	200	50	YES	CEC30126
6	500	50	YES	CEC30156
6	1000	30	YES	CEC301M6
10	200	50	YES	CEC3012Z
10	500	50	YES	CEC3015Z

CLEAN-UP®
CYH, CYCLOHEXYL SORBENT

Organic Loading = 11.6%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	100	100	YES	CECYH111
3	200	50	YES	CECYH123
3	200	50	NO	CUCYH123
3	500	50	YES	CECYH153
6	500	50	YES	CECYH156
6	1000	30	YES	CECYH1M6
15	2000	20	YES	CECYH12M15

CLEAN-UP®
PHY, PHENYL SORBENT

Organic Loading = 10.8%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	50	100	YES	CEPHY1L1
1	100	100	YES	CEPHY111
1	100	100	NO	CUPHY111
3	200	50	YES	CEPHY123
3	200	50	NO	CUPHY123
3	500	50	YES	CEPHY153
3	500	50	NO	CUPHY153
6	500	50	YES	CEPHY156
6	500	50	NO	CUPHY156
6	1000	30	YES	CEPHY1M6
10	100	50	YES	CEPHY11Z
10	200	50	YES	CEPHY12Z
10	200	50	NO	CUPHY12Z

WELL PLATE					
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Endcapped	Part Number
96	50	1	NO	YES	WSHPHY105