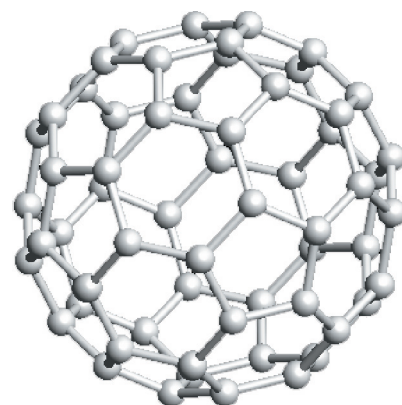


Specialty columns for Fullerene separation

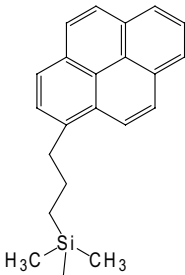
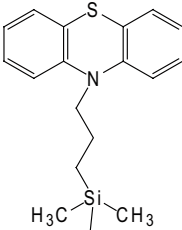
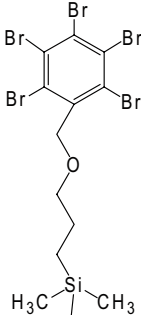
COSMOSIL Buckyprep / PBB

Specialty COSMOSIL HPLC Columns for Fullerene Separation

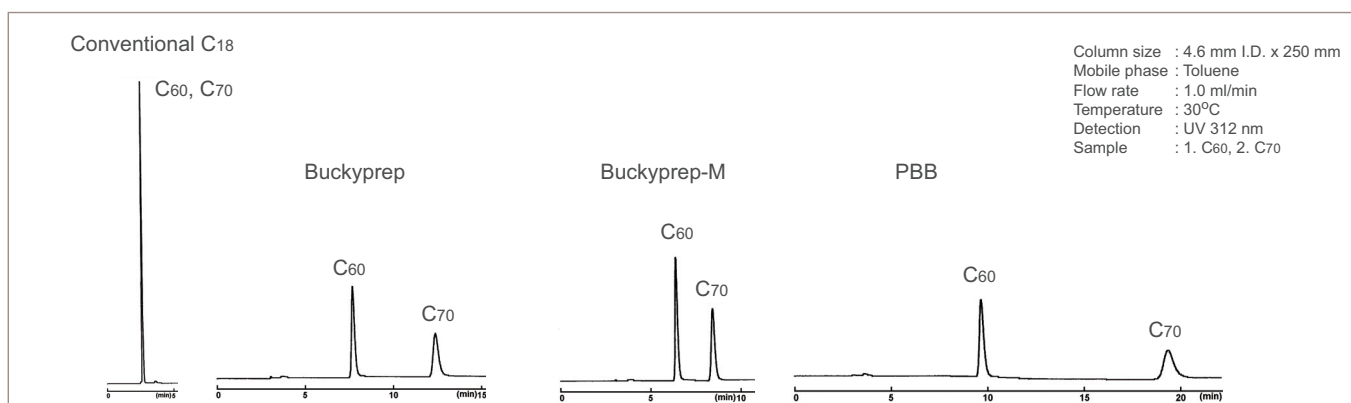
Separation of fullerenes, especially preparative scale separation, on conventional HPLC columns is always problematic due to the low solubility and low recovery rate of fullerenes. The COSMOSIL family of HPLC columns offers a variety of columns designed for preparative scale separation of fullerenes including higher fullerenes, metallofullerenes and fullerene derivatives.



Physical Characteristics

Packing material	Buckyprep	Buckyprep-M	PBB
Stationary phase	 pyrenylpropyl	 Phenothiazinyl	 Pentabromobenzyl
Application	Standard column Higher fullerene	Metallofullerenes	Preparative separation
Carbon content	approx. 17%	approx. 13%	approx. 8%
Silica gel	high purity porous spherical silica		
Average particle size	5 μm		
Average pore size	approx. 120 Å		
Specific surface area	approx. 300 m ² /g		

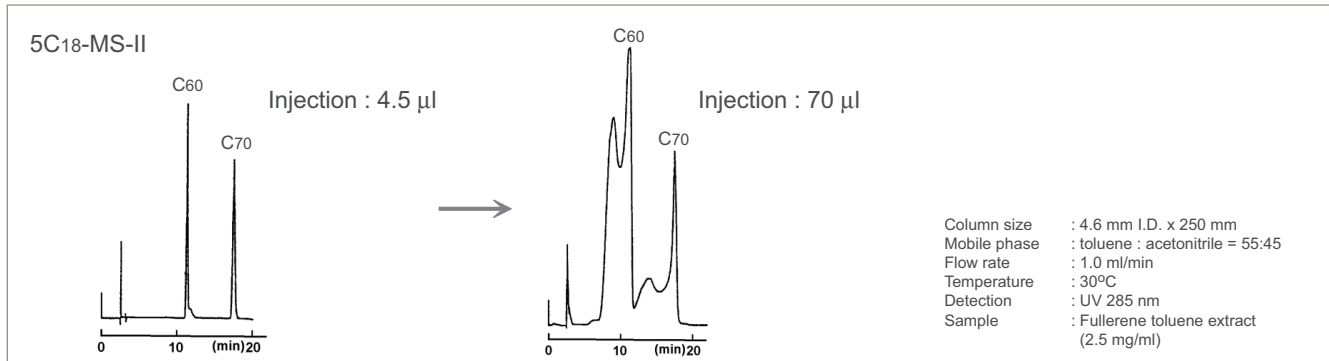
Retention characteristics of C60 and C70



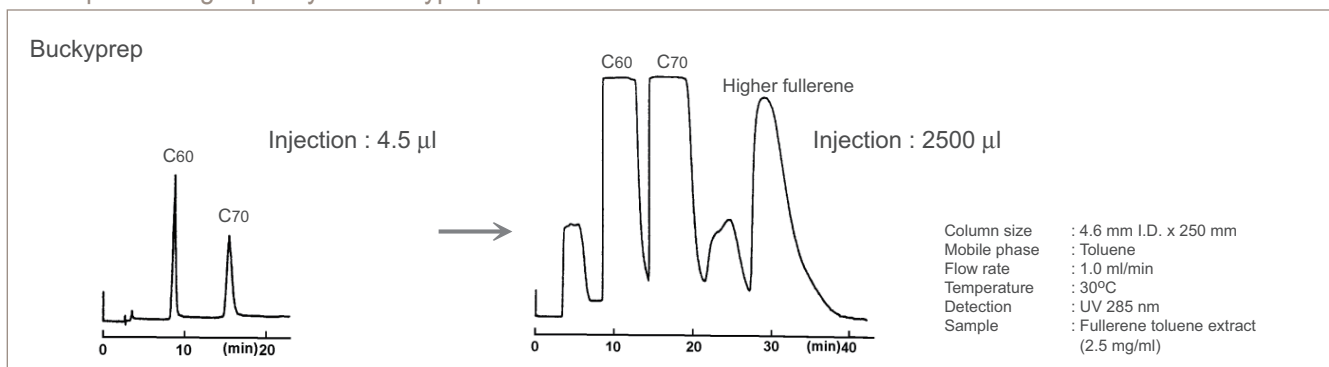
COSMOSIL Buckyrep

COSMOSIL Buckyrep is a pyrenylpropyl group-bonded silica-based column specifically designed for fullerene separation. The unparalleled separation capabilities have enabled COSMOSIL Buckyrep to become the worldwide benchmark of HPLC column for fullerene separation. COSMOSIL Buckyrep retains fullerenes very strongly with a mobile phase of 100% toluene and exceeds the injection volume of a standard C18 column by a factor of 35. Therefore, preparative scale separation can be obtained with a 250 mm x 4.6 mm I.D. analytical COSMOSIL Buckyrep column.

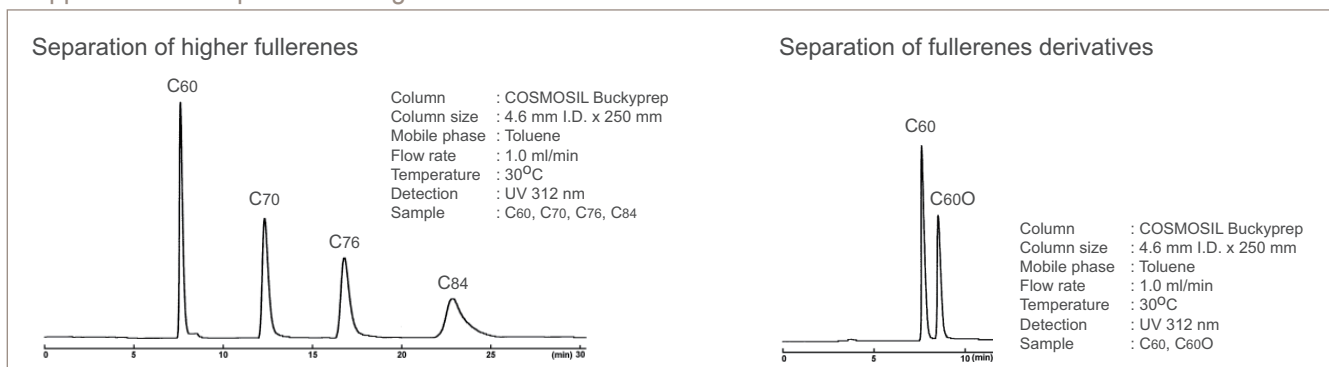
Sample loading capacity on C18 column



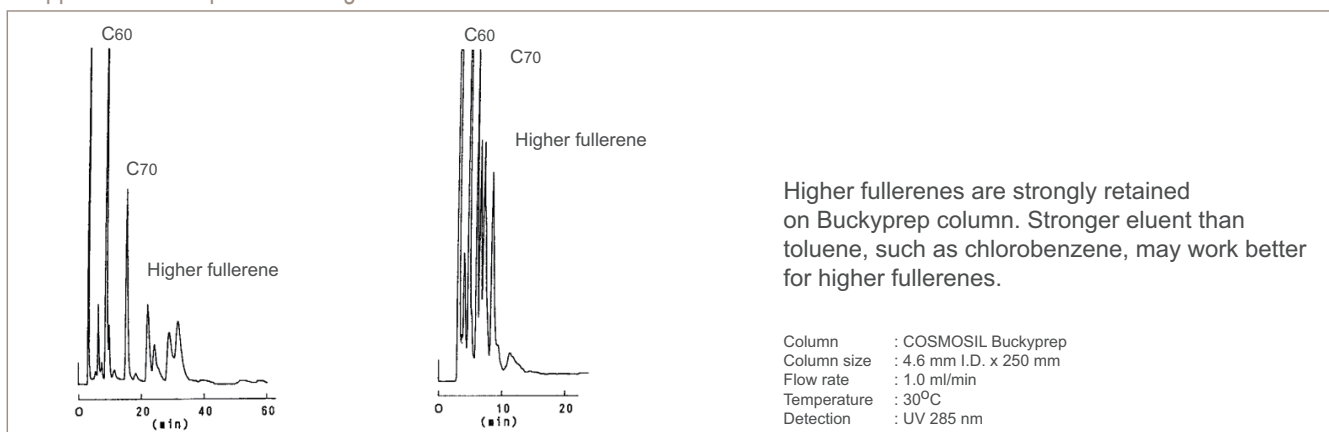
Sample loading capacity on Buckyrep



Applications Separation of higher fullerene and fullerene derivatives



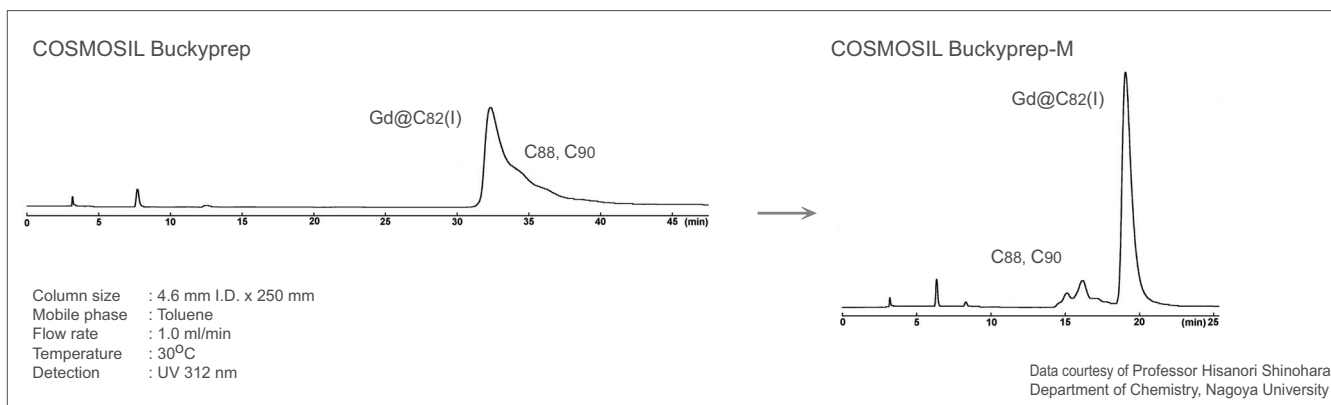
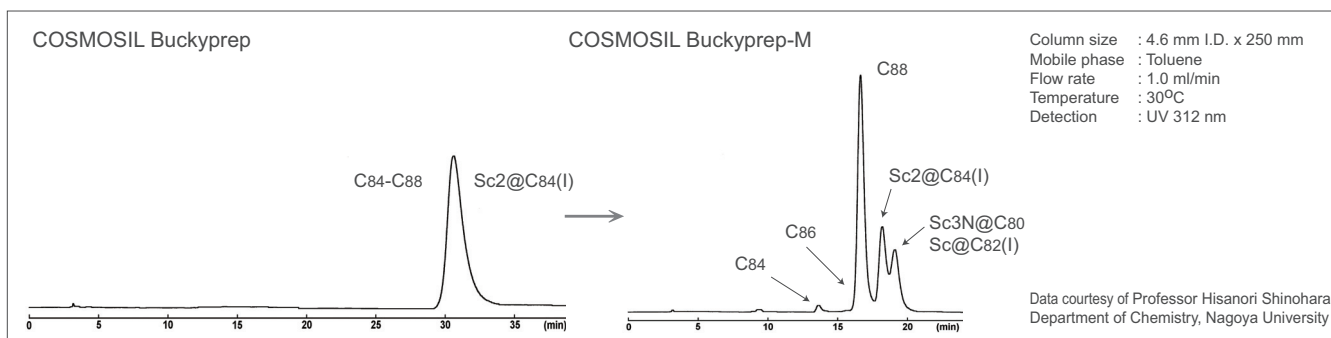
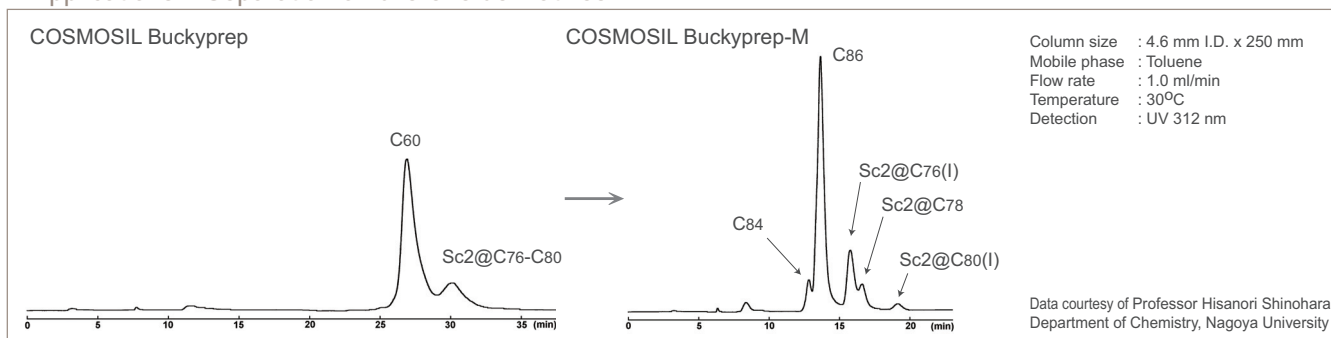
Applications Separation of higher fullerene and fullerene derivatives



COSMOSIL Buckyrep-M

COSMOSIL Buckyrep-M is a phenothiazinyl group-bonded silica-based column specifically designed for metallo-fullerene separation. Metallo-fullerenes are retained more strongly than other fullerenes on this column. COSMOSIL Buckyrep-M is also effective for the separation of higher fullerenes and fullerene derivatives.

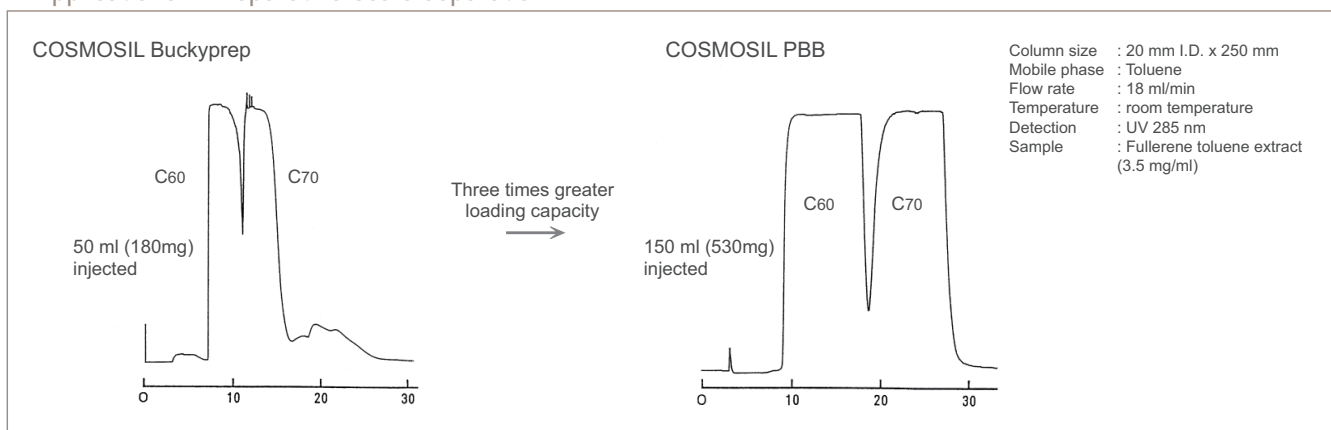
• Applications Separation of fullerene derivatives



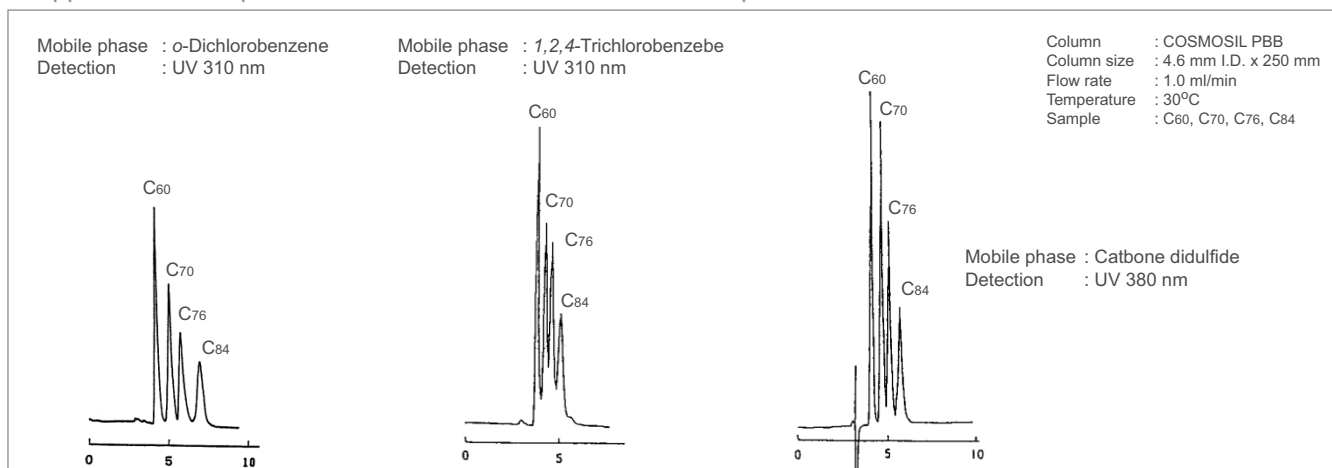
COSMOSIL PBB

COSMOSIL PBB is a pentabromobenzyl group-bonded silica-based column useful for preparative scale separation of fullerenes. It can be used with carbon disulfide or 1,2,4-trichlorobenzene, which has greater solubility for fullerenes than toluene. The loading capacity of COSMOSIL PBB for C60 and C70 can be three times greater than COSMOSIL Buckyrep.

• Applications Preparative-scale separation



• Applications Separation of fullerenes with different mobile phases



Ordering information

Product name	Size	Product No.	Product name	Size	Product No.
COSMOSIL Buckyprep Packed Column	4.6 mm I.D. x 250 mm	37977-61	COSMOSIL Buckyprep Guard Column	4.6 mm I.D. x 10 mm	37983-71
	10.0 mm I.D. x 250 mm	37981-91		10.0 mm I.D. x 20 mm	37984-61
	20.0 mm I.D. x 250 mm	37982-81		20.0 mm I.D. x 50 mm	34374-41
	28.0 mm I.D. x 250 mm	34346-11		28.0 mm I.D. x 50 mm	05871-21
COSMOSIL Buckyprep-M Packed Column	4.6 mm I.D. x 250 mm	04138-71	COSMOSIL Buckyprep-M Guard Column	4.6 mm I.D. x 10 mm	04139-61
	10.0 mm I.D. x 250 mm	04141-11		10.0 mm I.D. x 20 mm	04140-21
	20.0 mm I.D. x 250 mm	04142-01		20.0 mm I.D. x 50 mm	34474-31
	28.0 mm I.D. x 250 mm	05873-01		28.0 mm I.D. x 50 mm	05872-11
COSMOSIL PBB Packed Column	4.6 mm I.D. x 250 mm	37980-01	COSMOSIL PBB Guard Column	4.6 mm I.D. x 10 mm	37987-31
	10.0 mm I.D. x 250 mm	37985-51		10.0 mm I.D. x 20 mm	37988-21
	20.0 mm I.D. x 250 mm	37986-41		20.0 mm I.D. x 50 mm	34375-31

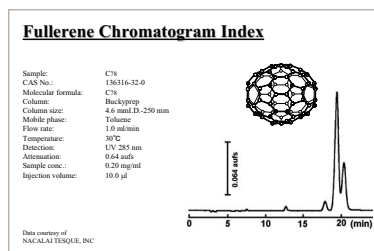
Other size may be available. Please enquire!!

• Suggested solvent for fullerene separation

Solvent	Solubility of C60 (mg/ml)	Features
Toluene	3.2	The most commonly used solvent.
Chlorobenzene	7.0	Stronger eluent than toluene. Recommended for higher fullerenes.
o-Dichlorobenzene	27.0	Stronger eluent than chlorobenzene. Highest solvency.
1,2,4-Trichlorobenzene	21.3	Strongest eluent. Recommended as a wash solvent.
n-Hexane	0.046	Weak eluent. Recommended for weakly retained fullerenes.
Acetonitrile	0.018	Weak eluent. Recommended for weakly retained fullerenes.

• Fullerene chromatogram index

A comprehensive index with more than 100 chromatograms for fullerene separation. Available from Nacalai Tesque, Inc. Please feel free to contact us for a copy.



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