

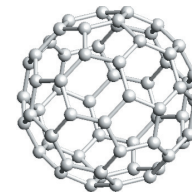


COSMOSIL

HPLC Column for Fullerene Separation

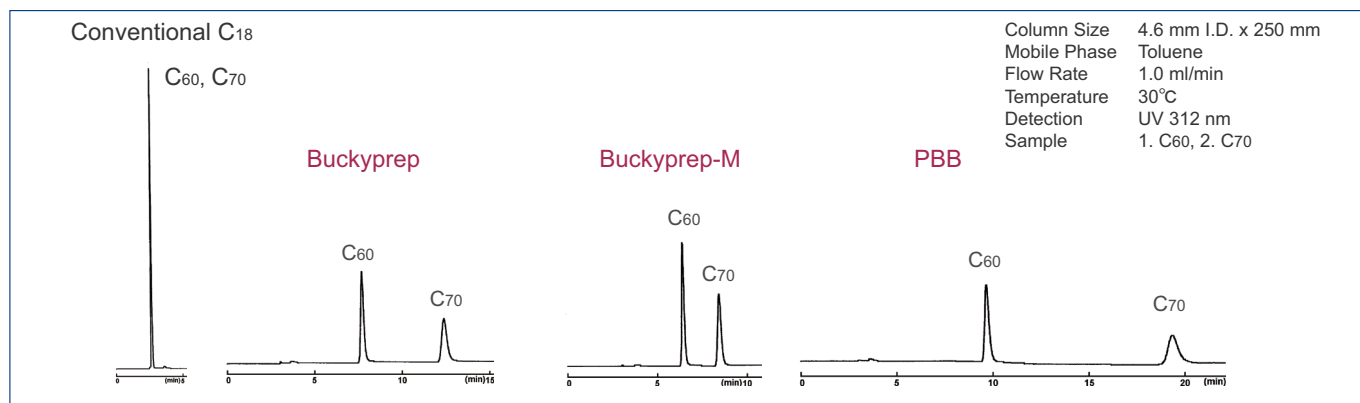
# COSMOSIL Buckyprep COSMOSIL PBB

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. COSMOSIL offers a variety of columns designed for preparative scale separation of fullerenes including higher fullerenes, metallofullerenes and fullerene derivatives.



	Buckyprep	Buckyprep-M	PBB
Packing Material	High Purity Porous Spherical Silica		
Average Particle Size	5 $\mu\text{m}$		
Average Pore Size	approx. 120 $\text{\AA}$		
Stationary Phasem	 Pyrenylpropyl Group	 Phenothiazinyl Group	 Pentabromobenzyl Group
Carbon Content	approx. 17%	approx. 13%	approx. 8%
Applications	Standard Column for Fullerenes	Separation of Metallofullerenes	Preparative Separation of Fullerenes

## Retention Characteristics of C60 and C70



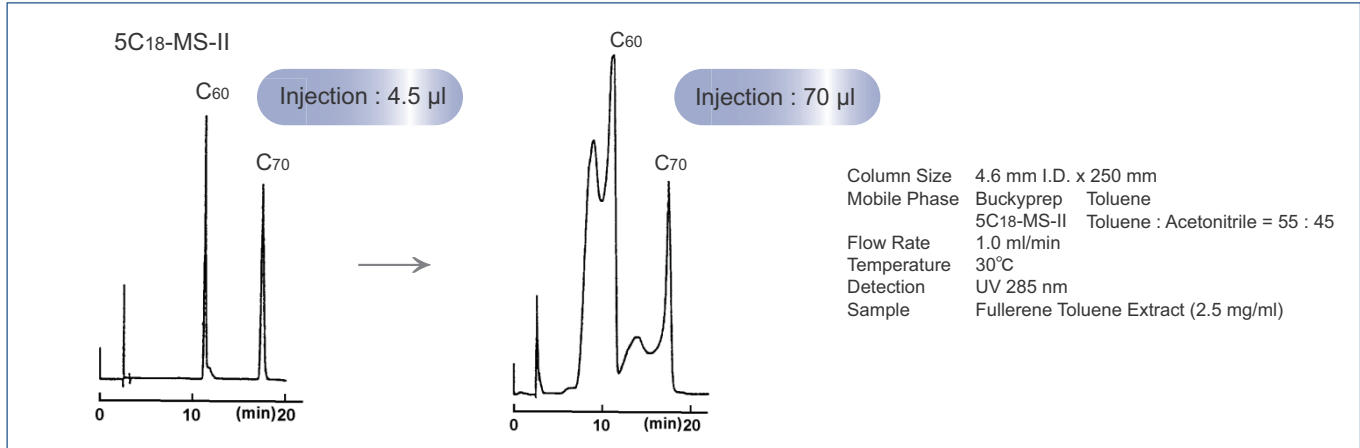
## COSMOSIL Buckyprep

- *Standard column for fullerene separation*
- *Excellent separation for higher and derivatized fullerenes*

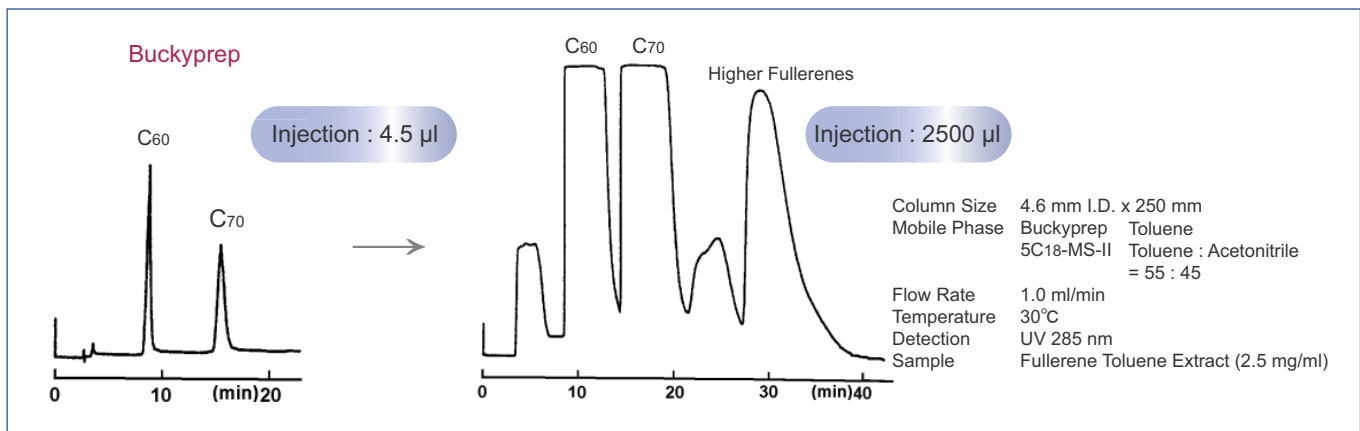
COSMOSIL Buckyprep is a Pyrenylpropyl group bonded silica based column specifically designed for fullerene separation. COSMOSIL Buckyprep retains fullerenes very strongly with a mobile phase of 100% toluene and exceeds the injection volume of a standard C18 column by a factor of 35. Therefore, preparative scale separation can be obtained with a 4.6 mm I.D. x 250 mm analytical column.

## COSMOSIL Buckyrep (continued)

### Sample Loading Capacity on C18 Column

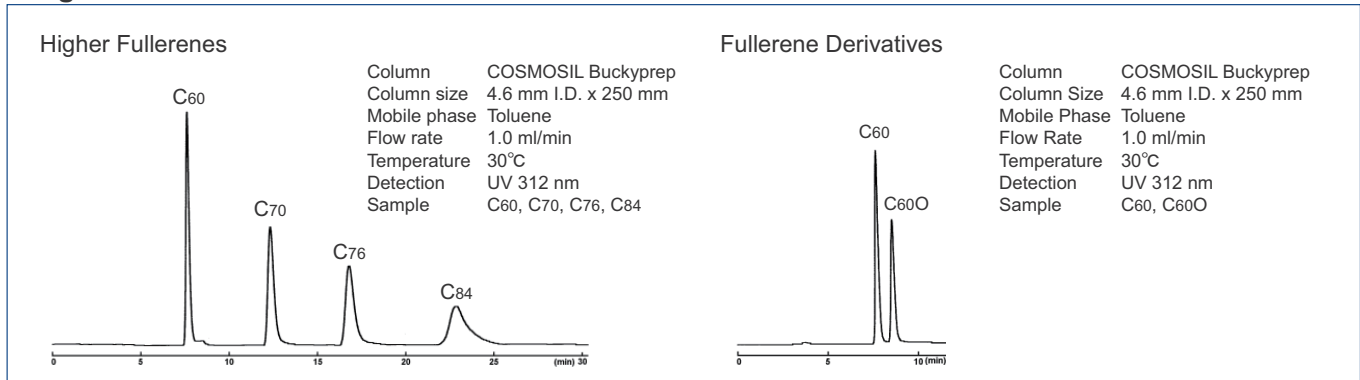


### Sample Loading Capacity on Buckyrep Column

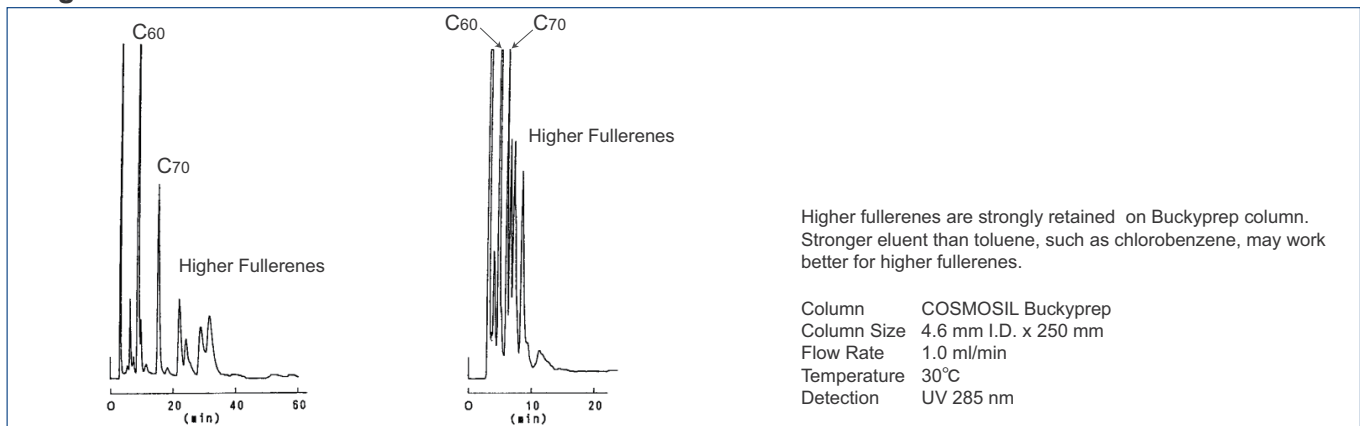


### Application Data

#### Higher Fullerenes and Fullerene Derivatives



#### Higher Fullerenes

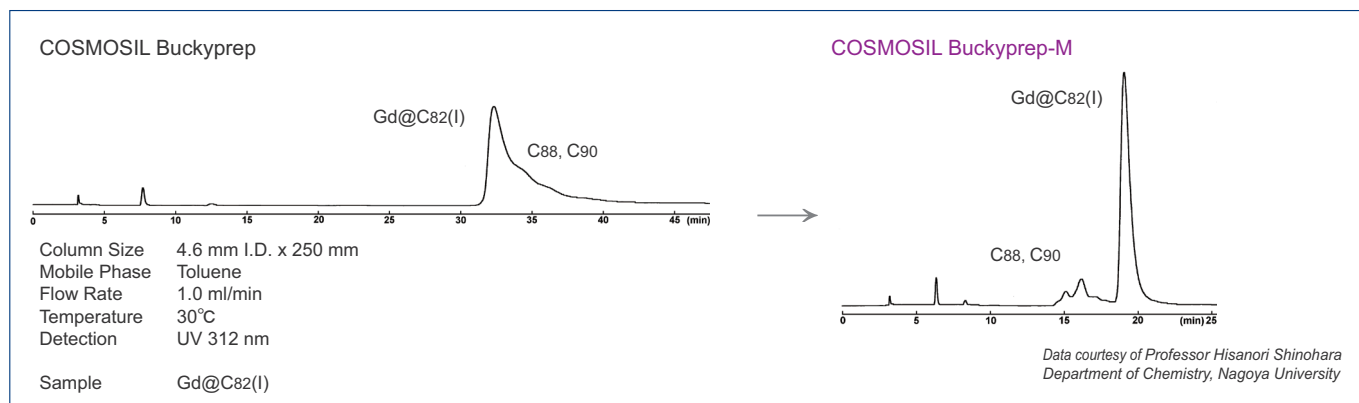
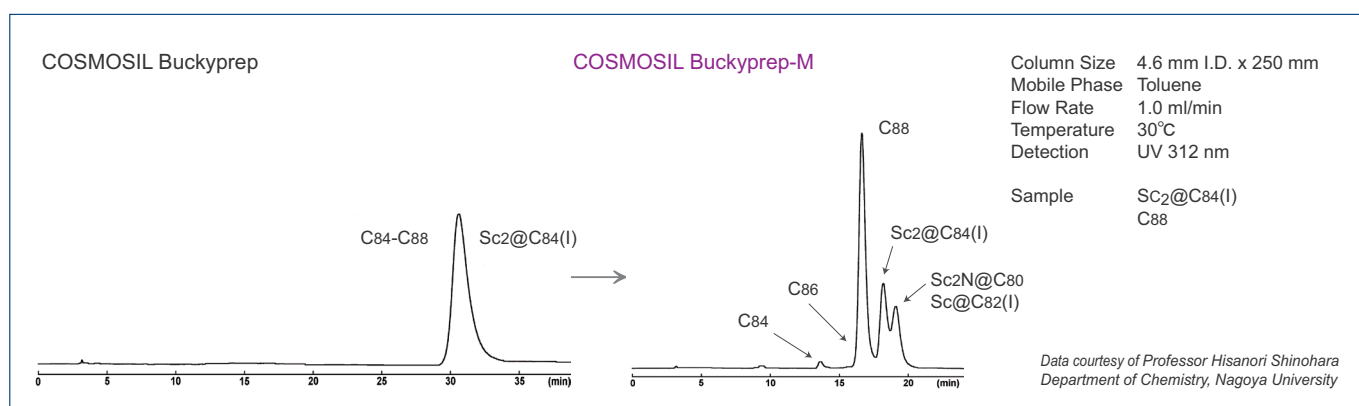
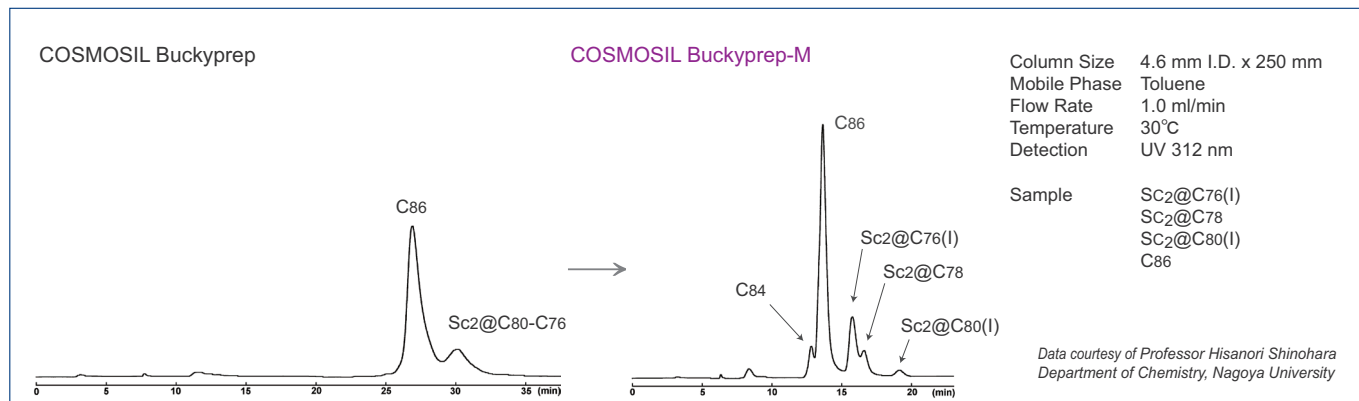


## COSMOSIL Buckyrep-M

- *Excellent separation for metallofullerenes*

COSMOSIL Buckyrep-M is a Phenothiazinyl group bonded silica based column specifically designed for metallofullerene separation. Metallofullerenes 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.

### Separation of Metallofullerenes



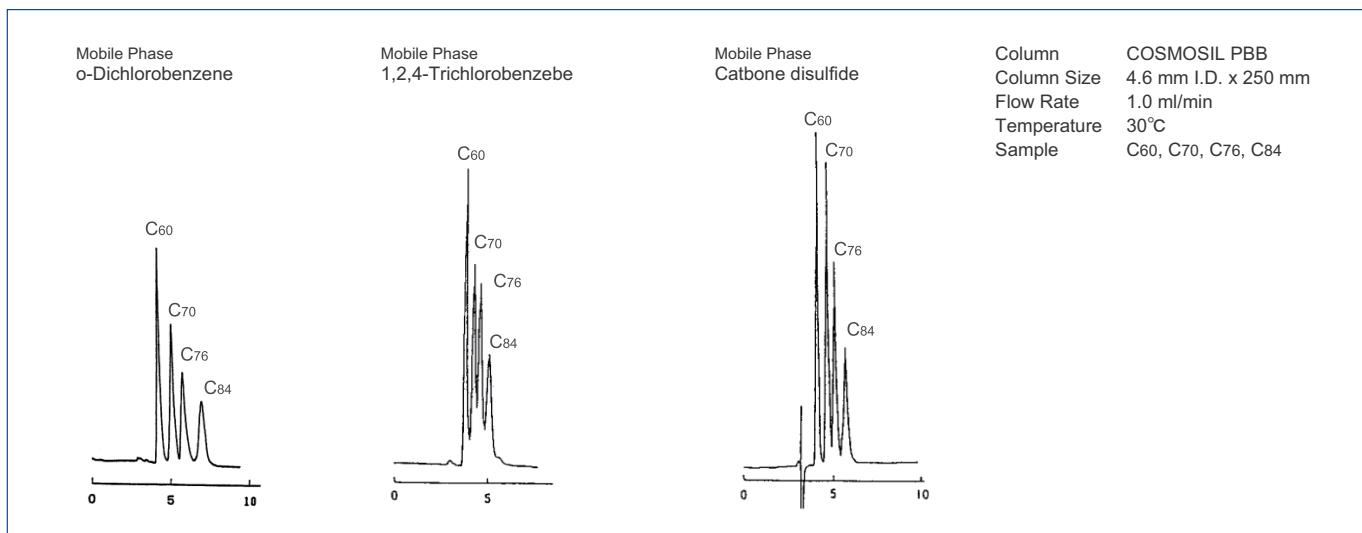
## COSMOSIL PBB

- *Designed for preparative separation of fullerenes and higher fullerenes*
- *Can use with o-dichlorobenzene or carbon disulfide*

COSMOSIL PBB is a Pentabromobenzyl group bonded silica based column useful for preparative scale separation of fullerenes. It can be used with *o*-dichlorobenzene or carbon disulfide, which has greater solubility for fullerenes than toluene. The loading capacity of COSMOSIL PBB for C<sub>60</sub> and C<sub>70</sub> can be three times greater than COSMOSIL Buckyrep.

## COSMOSIL PBB (continued)

### Separation of Fullerenes with Different Mobile Phases

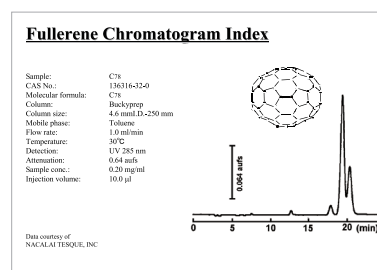


### Suggested Solvent for Fullerene Separation

Solvent	Solubility of C <sub>60</sub> (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.
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 is available from Nacalai Tesque. Please feel free to contact us for a copy.



### Ordering Information

Product Name	Column Size	Product Number	Product Name	Column Size	Product Number
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.

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