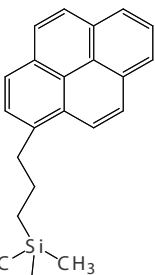
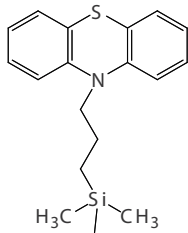
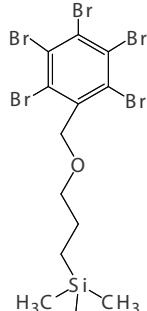




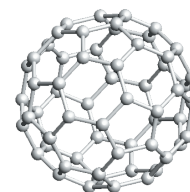
COSMOSIL

HPLC Column for Fullerene Separation

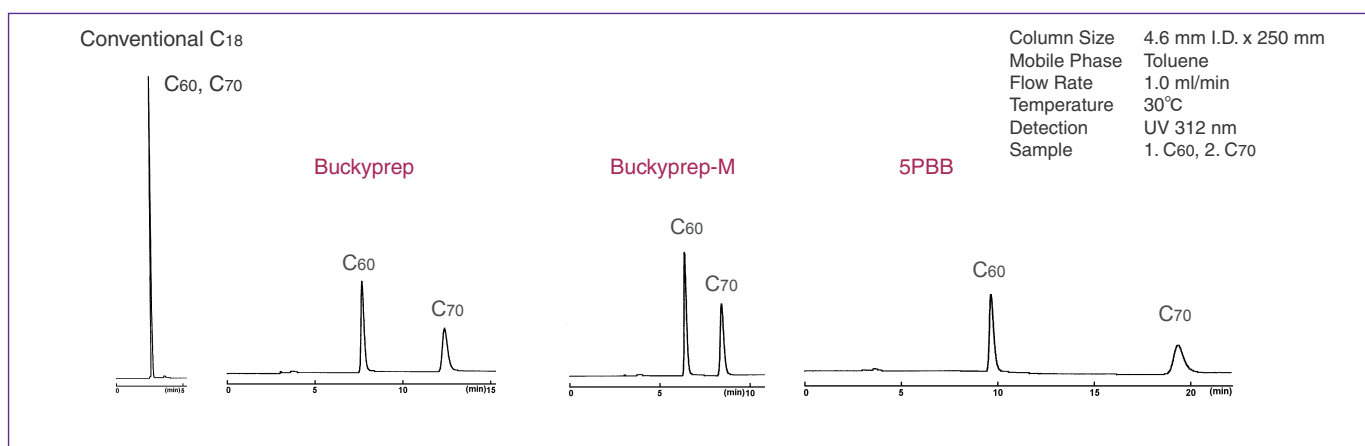
COSMOSIL Buckyprep COSMOSIL PBB

| | Buckyprep | Buckyprep-M | PBB |
|-----------------------|--|--|---|
| Stationary Phase |  <p>Pyrenylpropyl Group</p> |  <p>Phenothiazinyl Group</p> |  <p>Pentabromobenzyl Group</p> |
| Applications | Standard Column for Fullerenes | Separation of Metallofullerenes | Preparative Separation of Fullerenes |
| 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 | | |

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.



Retention Characteristics of C₆₀ and C₇₀



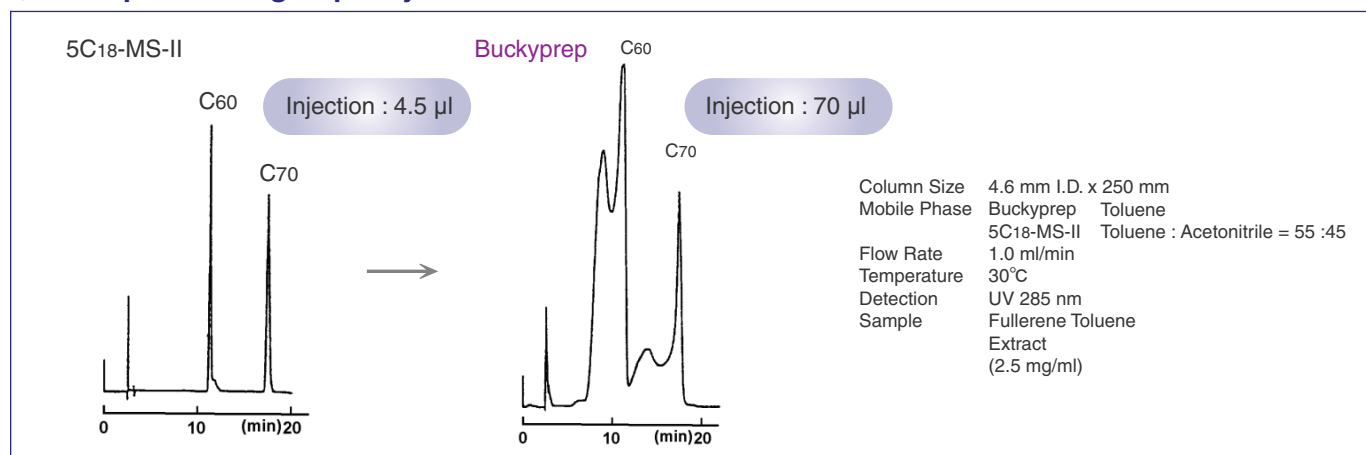
COSMOSIL Buckyprep

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

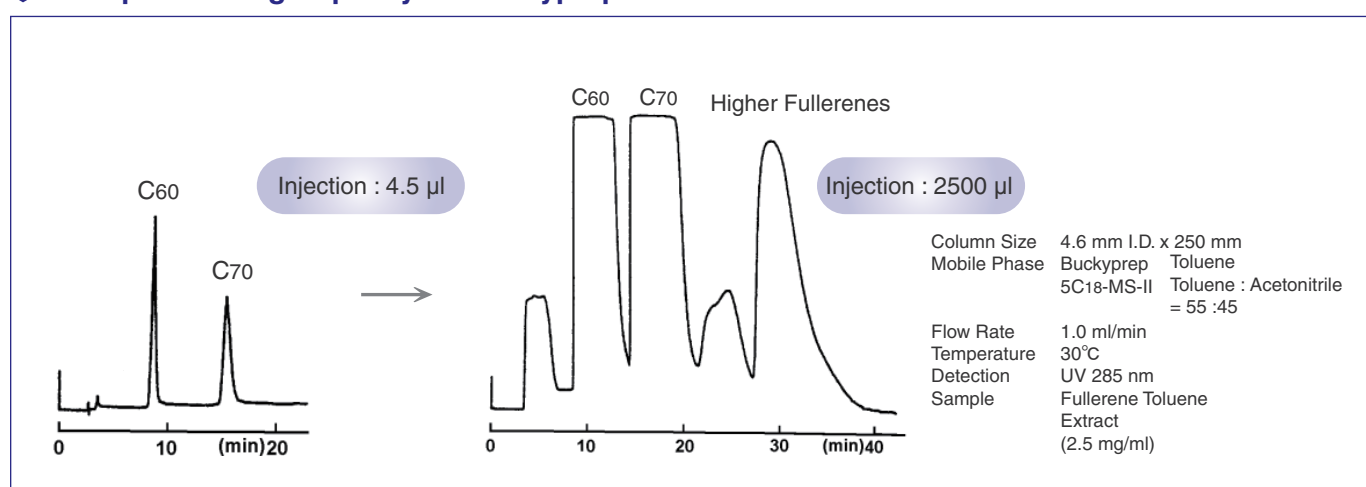
COSMOSIL Buckyprep is a Pyrenylpropyl group bonded silica based column specifically designed for fullerene separation. COSMOSIL Buckyprep retains fullerenes very strongly with a mobile phase of 100% toluene and exceeds the injection volume of a standard C₁₈ column by a factor of 35. Therefore, preparative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

COSMOSIL Buckyprep (continued)

Sample Loading Capacity on C18 Column

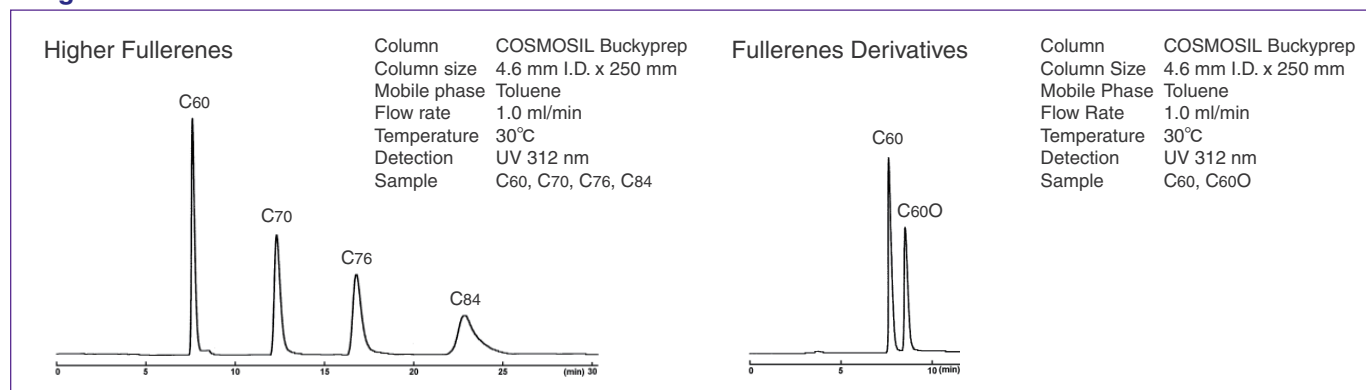


Sample Loading Capacity on Buckyprep Column

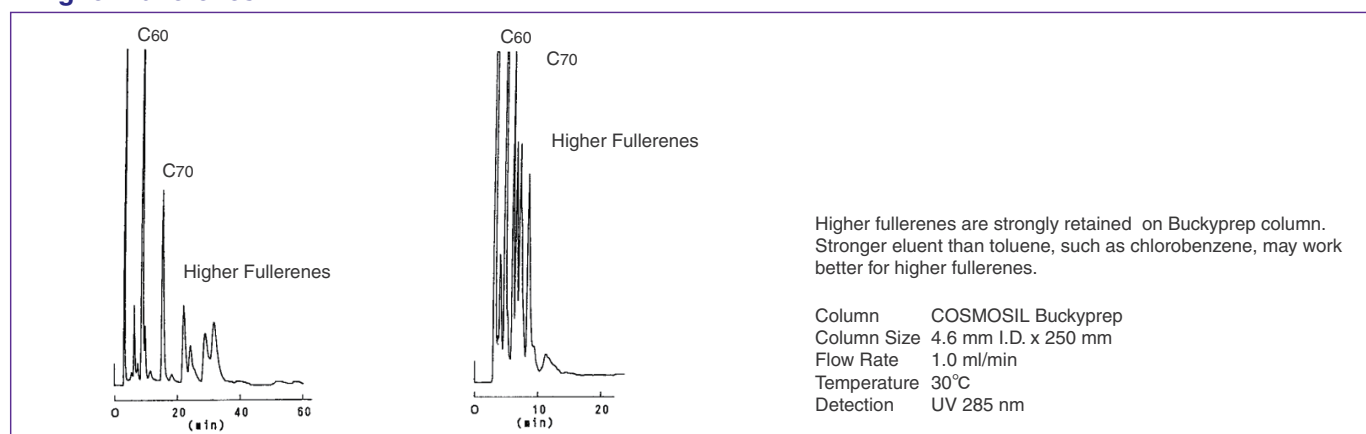


Application Data

Higher Fullerenes and Fullerene Derivatives



Higher Fullerenes

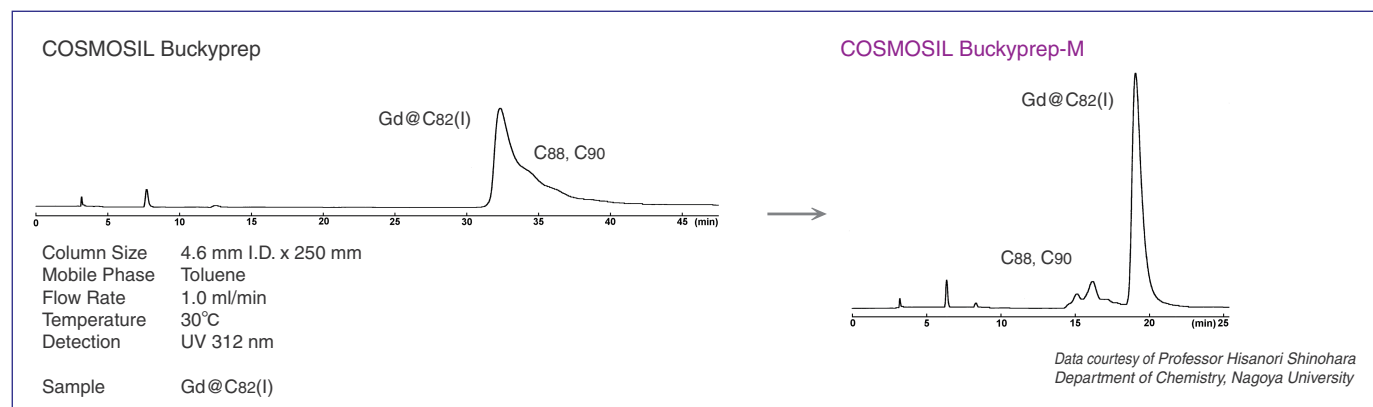
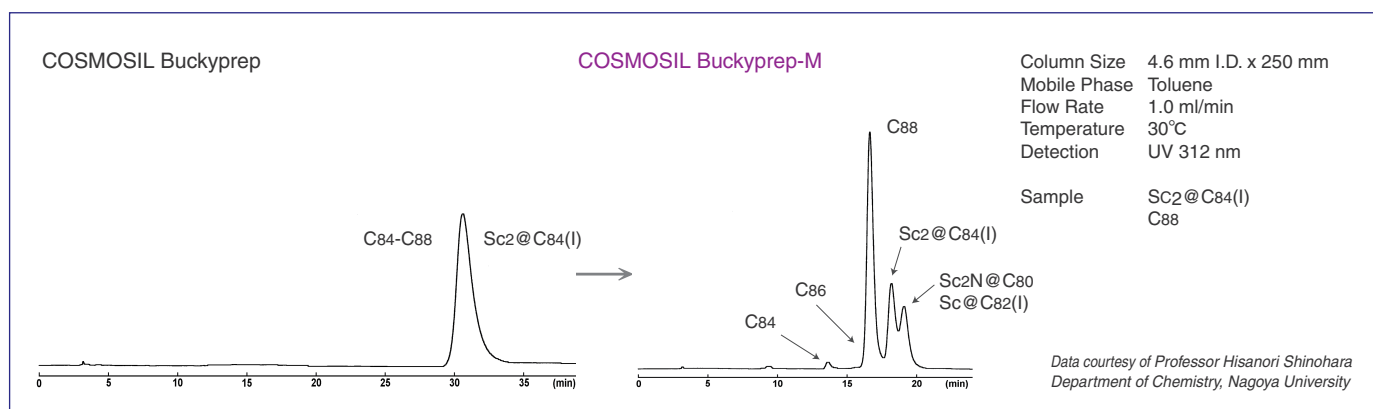
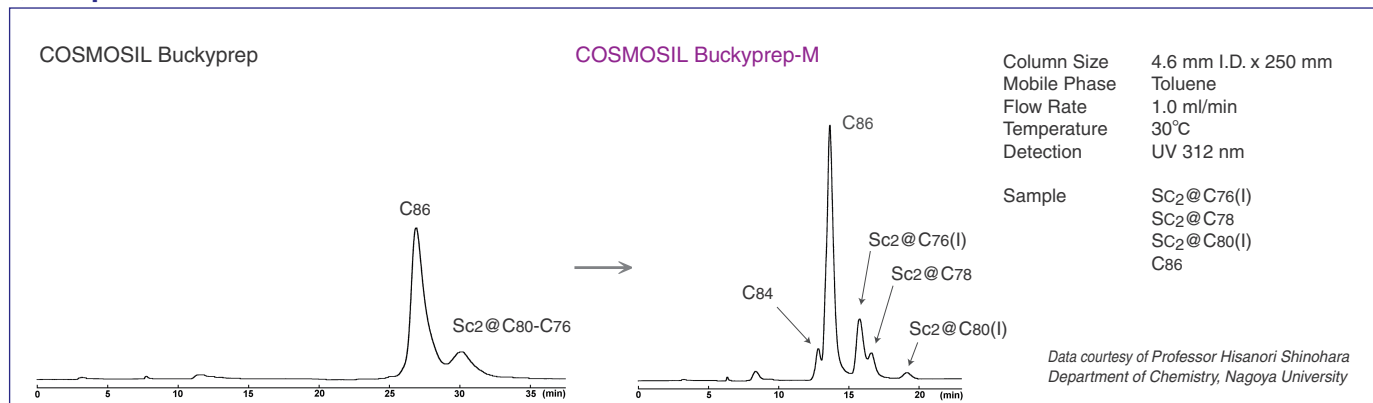


COSMOSIL Buckyrep-M

- *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



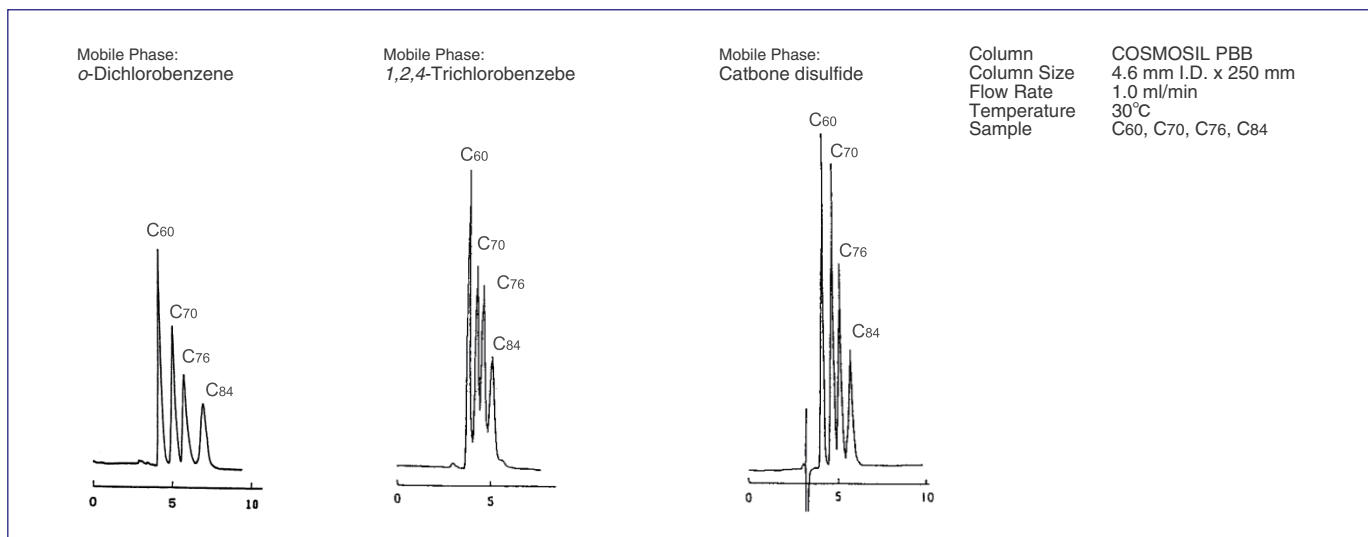
COSMOSIL PBB

- *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 C₆₀ and C₇₀ can be three times greater than COSMOSIL Buckyrep.

COSMOSIL PBB (continued)

Separation of Fullerenes with Different Mobile Phases

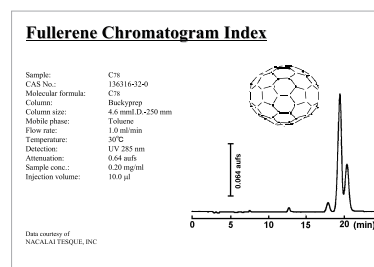


Suggested Solvent for Fullerene Separation

| Solvent | Solubility of C60 (mg/ml) | Features |
|---------------------------|---------------------------|--|
| Toluene | 3.2 | The most commonly used solvent. |
| Chlorobenzene | 7.0 | Stronger eluent than toluene. Recommended for higher fullerenes. |
| <i>o</i> -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.

For research use only, not intended for diagnostic or drug use.