

Macrocycles for Host-Guest Chemistry

Host-compounds recognize and incorporate specific molecules, atoms or ions (guests) into the molecules to form complexes. In the formation of these complexes, a variety of forces such as electrostatic interaction, hydrophobic interaction, hydrogen bonding, etc. are utilized to create high selectivity. Molecular sensors, synthetic enzymes, separation systems, etc. utilize the high guest selectivity of these host compounds. Synthesis of new host compounds with even higher selectivity are currently being developed.

For example, Shinkai and co-workers have developed exciting purification techniques for fullerene C_{60} employing calixarene. According to these techniques, the stirring of crude fullerene and *tert*-butylcalix[8]arene in toluene causes only C_{60} to be incorporated in the calixarene to form and precipitate a complex. Filtration and subsequent stirring of the complex in chloroform cause it to decompose to yield C_{60} of high purity as a precipitate. This method has been reported to be an efficient purification technique in obtaining C_{60} compared with conventional column purification techniques.

Crown Ethers		A1603	A1604	A1568
A1404	A1552	A1323	A1324	B1249
B1154	B1539	B2245	B2189	B2181
C1713	C1714	C1942	C1943	C0858
C0859	C0860	C1736	D2743	D2744

Keywords : macrocycles, crown ethers, calixarenes, cyclophanes, cyclodextrins, host-guest chemistry

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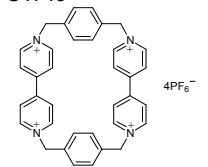
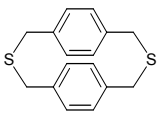
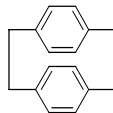
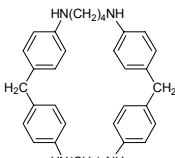
D2323	D2877	D1533	D2878	D1830
D2684	D2321	D1668	F0448	F0451
H1070	H1215	H0932	H0982	H0983
H0990	M1489	N0561	N0562	P1143
T1874	T1426	T1597	T1691	T1959
T1600	T1879	T1972		

A1603	4'-Acetylbenzo-15-crown 5-Ether		1g
A1604	4'-Acetylbenzo-18-crown 6-Ether		1g
A1568	2-(Allyloxymethyl)-18-crown 6-Ether	1g	100mg
A1404	4'-Aminobenzo-15-crown 5-Ether		1g
A1552	1-Aza-12-crown 4-Ether	1g	250mg
A1323	1-Aza-15-crown 5-Ether	5g	1g
A1324	1-Aza-18-crown 6-Ether	5g	1g
B1249	Benzo-12-crown 4-Ether	5g	1g
B1154	Benzo-15-crown 5-Ether	5g	1g
B1539	Benzo-18-crown 6-Ether	5g	1g
B2245	Bis(1,4-phenylene)-34-crown 10-Ether		100mg
B2189	4'-Bromobenzo-15-crown 5-Ether	5g	1g
B2181	4'-Bromobenzo-18-crown 6-Ether	5g	1g
C1713	4'-Carboxybenzo-15-crown 5-Ether		1g
C1714	4'-Carboxybenzo-18-crown 6-Ether		100mg
C1942	15-Crown-4 [4-(2,4-Dinitrophenylazo)phenol]		100mg
C1943	18-Crown-5 [4-(2,4-Dinitrophenylazo)phenol]		100mg
C0858	12-Crown 4-Ether	5ml	1ml
C0859	15-Crown 5-Ether	25ml	5ml
C0860	18-Crown 6-Ether	100g	25g
C1736	24-Crown 8-Ether		5g
D2743	4,10-Diaza-12-crown 4-Ether		1g
D2744	4,10-Diaza-15-crown 5-Ether	1g	100mg
D2323	4,13-Diaza-18-crown 6-Ether		1g
D2877	Dibenzo-15-crown 5-Ether		1g
D1533	Dibenzo-18-crown 6-Ether	25g	5g
D2878	Dibenzo-21-crown 7-Ether	5g	1g
D1830	Dibenzo-24-crown 8-Ether	5g	1g
D2684	Dibenzo-30-crown 10-Ether		1g

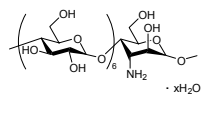
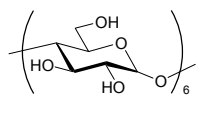
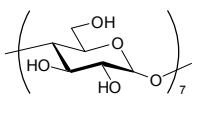
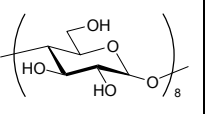
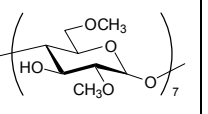
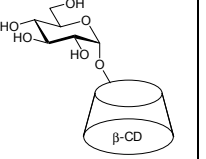
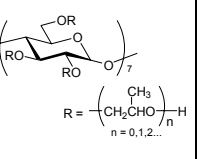
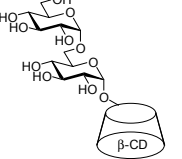
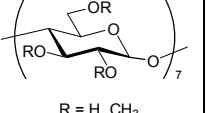

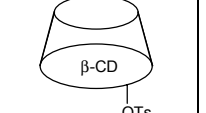
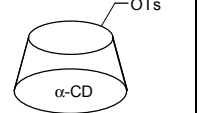
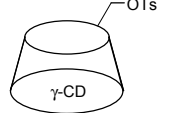
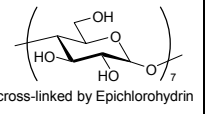
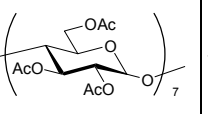
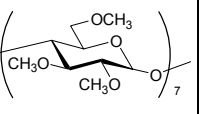
D2321	<i>N,N'</i> -Dibenzyl-4,13-diaza-18-crown 6-Ether	5g	1g
D1668	Dicyclohexano-18-crown 6-Ether	5g	1g
F0448	4'-Formylbenzo-15-crown 5-Ether	1g	100mg
F0451	4'-Formylbenzo-18-crown 6-Ether		500mg
H1070	1,4,7,10,13,16-Hexaazacyclooctadecane		100mg
H1215	1,4,7,10,13,16-Hexaazacyclooctadecane Hexahydrochloride		100mg
H0932	4,7,13,16,21,24-Hexaoxa-1,10-diazabicyclo[8.8.8]hexacosane		1g
H0982	2-(Hydroxymethyl)-12-crown 4-Ether	5g	1g
H0983	2-(Hydroxymethyl)-15-crown 5-Ether	25g	5g
H0990	2-(Hydroxymethyl)-18-crown 6-Ether	1g	200mg
M1489	4'-Methoxycarbonylbenzo-15-crown 5-Ether		1g
N0561	4'-Nitrobenzo-15-crown 5-Ether	5g	1g
N0562	4'-Nitrobenzo-18-crown 6-Ether	5g	1g
P1143	<i>N</i> -Phenylaza-15-crown 5-Ether	5g	1g
T1874	1,4,7,10-Tetraazacyclododecane		1g
T1426	1,4,7,10-Tetraazacyclododecane Tetrahydrochloride	5g	1g
T1597	1,4,8,11-Tetraazacyclotetradecane	5g	1g
T1691	1,4,8,12-Tetraazacyclopentadecane		1g
T1959	1,4,8,11-Tetrathiacyclotetradecane		1g
T1600	1,4,7-Triazacyclononane Trihydrochloride	5g	1g
T1879	1,4,7-Trimethyl-1,4,7-triazacyclononane		1g
T1972	1,4,7-Trithiacyclononane		500mg

Calixarenes		B1809 	B2221 	H0714
B1750 	C1455 	H0713 	C1435 	H0889
S0469 	S0471 	U0069 	B2296 	B2310
B2312 	S0477 			

B1809	4- <i>tert</i> -Butylcalix[4]arene	5g	1g
B2221	4- <i>tert</i> -Butylcalix[5]arene		100mg
H0714	4- <i>tert</i> -Butylcalix[6]arene (contains 5-10% Benzene)	25g	5g
B1750	4- <i>tert</i> -Butylcalix[8]arene	25g	5g
C1455	Calix[4]arene (contains <i>ca.</i> 8% Chloroform)	1g	100mg
H0713	Calix[6]arene (contains <i>ca.</i> 5% Benzene)	5g	1g
C1435	Calix[8]arene	5g	1g
H0889	4-Methyl-1-acetoxycalix[6]arene (contains 5-10% Acetone)	1g	100mg
S0469	4-Sulfocalix[4]arene (contains <i>ca.</i> 15% Water)	5g	1g
S0471	4-Sulfocalix[8]arene (contains <i>ca.</i> 20% Water)	5g	1g
U0069	<i>C</i> -Undecylcalix[4]resorcinarene Monohydrate		1g
B2296	4- <i>tert</i> -Butylthiacalix[4]arene	5g	1g
B2310	4- <i>tert</i> -Butyl-1-(ethoxycarbonylmethoxy)thiacalix[4]arene	5g	1g
B2312	4- <i>tert</i> -Butylsulfonylcalix[4]arene	5g	1g
S0477	4-Sulfothiacalix[4]arene Sodium Salt	5g	1g

Cyclophanes	C1749 	D2210 	P1165 	T1378 
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C1749	Cyclobis(paraquat-1,4-phenylene) Tetrakis(hexafluorophosphate)		100mg
D2210	2,11-Dithia[3.3]paracyclophane	500mg	100mg
P1165	[2.2]-Paracyclophane		1g
T1378	1,6,20,25-Tetraaza[6.1.6.1]paracyclophane		100mg

Cyclodextrins	A1916 	C0776 	C0777 C0900 	
	C0869 	D1732 	G0263 	H0979  R = $\text{-(CH}_2\text{CHO)}_n\text{-H}$ n = 0,1,2...
	M1219 	M1356  R = H, CH ₃	M1212 	M1741 
	M1644 	M1645 	P0977  cross-linked by Epichlorohydrin	T1844 
	T1094 			

A1916	3A-Amino-3A-deoxy-(2AS,3AS)-β-cyclodextrin Hydrate		1g
C0776	α-Cyclodextrin	25g	10g
C0777	β-Cyclodextrin		25g
C0900	β-Cyclodextrin	500g	25g
C0869	γ-Cyclodextrin	25g	5g
D1732	2,6-Di-O-methyl-β-cyclodextrin		1g
G0263	6-O-α-D-Glucosyl-β-cyclodextrin	5g	1g
H0979	Hydroxypropyl-β-cyclodextrin		25g
M1219	6-O-α-D-Maltosyl-β-cyclodextrin	5g	1g
M1356	Methyl-β-cyclodextrin		25g
M1212	Mono-6-O-mesitylenesulfonyl-γ-cyclodextrin		1g
M1741	Mono-2-O-(p-toluenesulfonyl)-β-cyclodextrin		1g
M1644	Mono-6-O-(p-toluenesulfonyl)-α-cyclodextrin		200mg
M1645	Mono-6-O-(p-toluenesulfonyl)-γ-cyclodextrin		200mg
P0977	Poly-β-cyclodextrin [Cross-linked by Epichlorohydrin]	5g	1g
T1844	Triacetyl-β-cyclodextrin		25g
T1094	Trimethyl-β-cyclodextrin		1g

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