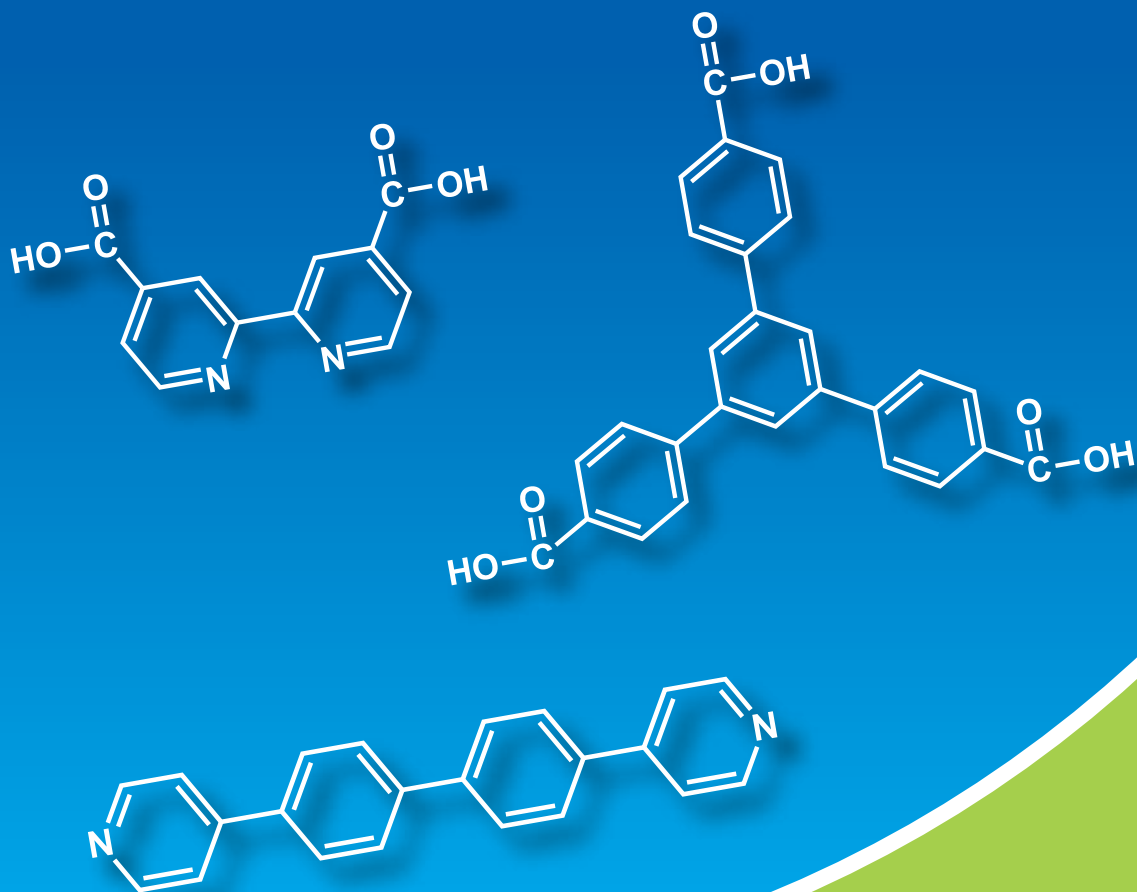


金属有機構造体 (MOF) ・ 多孔配位高分子 (PCP) 用有機リンカー

Organic Linker Molecules for Metal Organic Frameworks (MOFs)



含酸素有機リンカー

含窒素有機リンカー

その他の有機リンカー

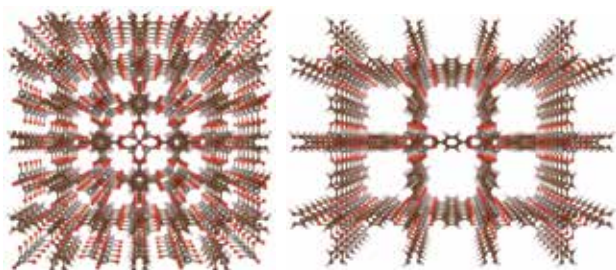
金属有機構造体(MOF)・ 多孔配位高分子(PCP)用有機リンカー

金属有機構造体 (MOF)、多孔性配位高分子 (PCP) はこれまでに2万種以上の物質が報告されており、様々な金属イオンと有機配位子との組合せにより、そのネットワーク構造は多様なものとなります^{1,2)}。MOF/PCPは、活性炭やゼオライトをはるかに越える高表面積をもつ多孔質な配位ネットワークを持ちます。そのナノメートルサイズの細孔に小さい分子を吸収でき、ガスの貯蔵や分離、センサー、触媒への応用が期待されています。

イミダゾール系の有機配位子を有するゼオライト型の機能を示す構造体ZIFs (Zeolitic Imidazolate Frameworks)は、熱安定性、化学安定性に優れており、水中でも安定に存在できるという特徴から多数の例が報告されています^{3,4)}。

また、単結晶のMOF/PCPの細孔内に低分子を吸収させ、その低分子化合物のX線構造解析を可能とする手法は結晶スポンジ法と呼ばれています。非晶質の有機分子、気体の分子などのX線構造解析も可能とする技術として知られています^{5,6)}。

金属イオンの配位方向、有機配位子の構造によりMOF/PCPの構造を合理的に設計することが可能で、有機配位子に官能基を導入することで機能性を付与することも出来ます。TCIでは、多様なMOF/PCP設計のための有機配位子 (有機リンカー) を品揃えています。

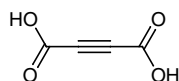


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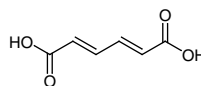
含酸素有機リンカー

A0088 5g 25g



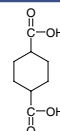
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CAS RN: 142-45-0

M0473 1g



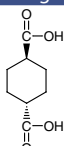
trans,trans-Muconic Acid
CAS RN: 3588-17-8

C0788 25g 500g



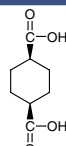
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C0475 25g 100g 500g



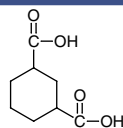
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C0789 25g 100g



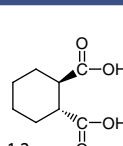
cis-1,4-Cyclohexanedicarboxylic Acid
CAS RN: 619-81-8

C2186 5g 25g



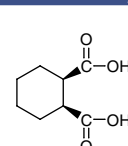
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C1953 1g 5g



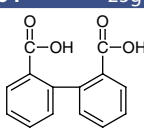
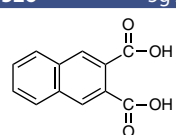
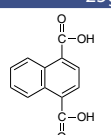
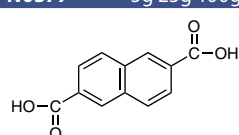
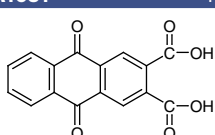
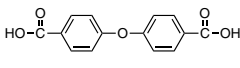
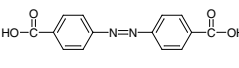
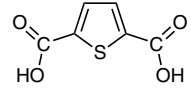
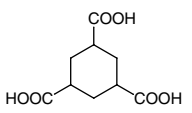
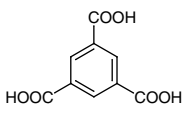
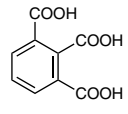
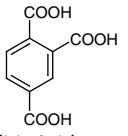
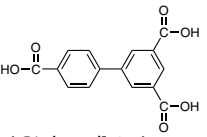
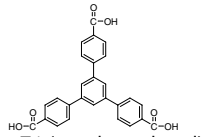
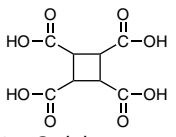
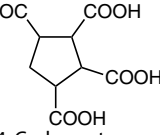
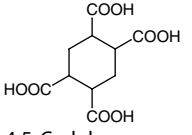
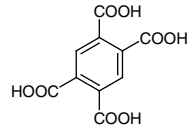
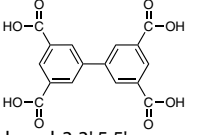
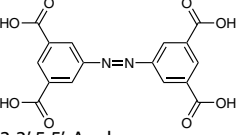
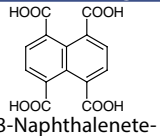
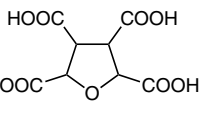
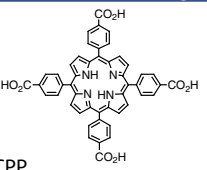
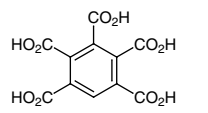
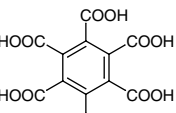
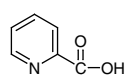
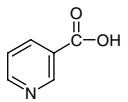
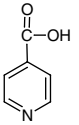
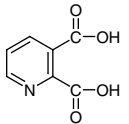
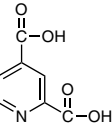
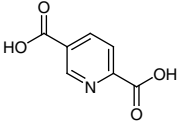
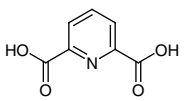
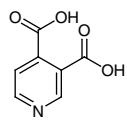
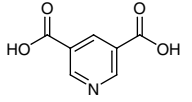
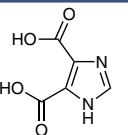
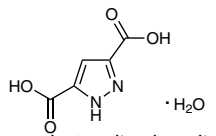
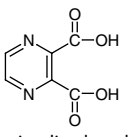
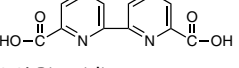
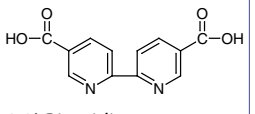
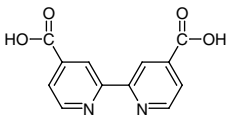
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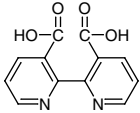
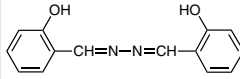
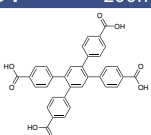
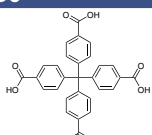

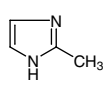
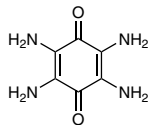



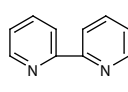
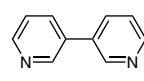
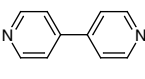
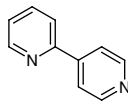
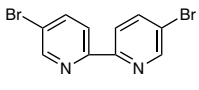
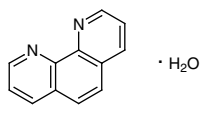
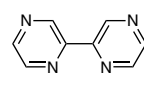
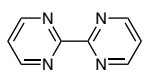
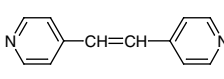
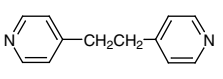
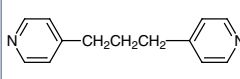
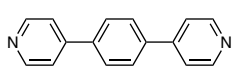
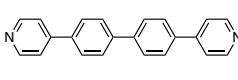
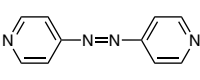
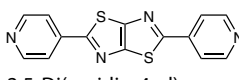
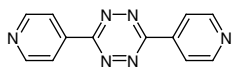
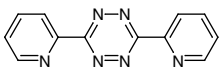
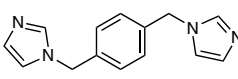
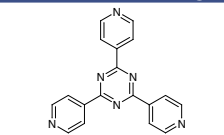
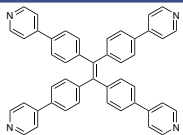
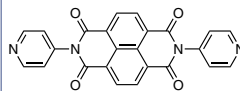
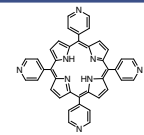
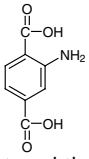
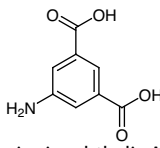
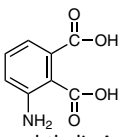
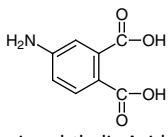
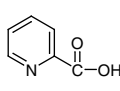
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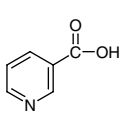
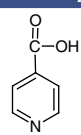
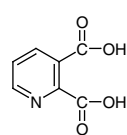
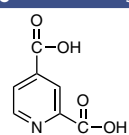
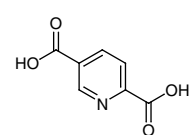
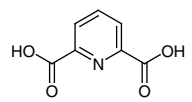
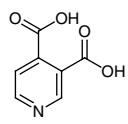
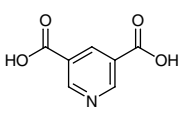
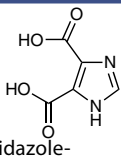
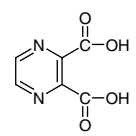
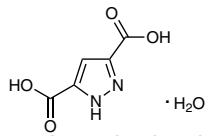
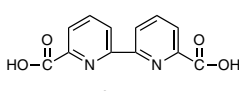
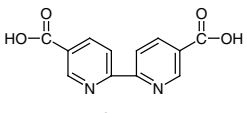
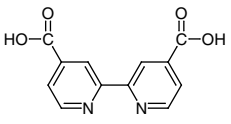
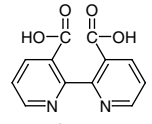
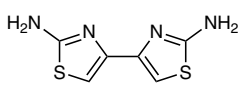
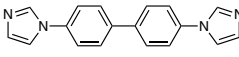
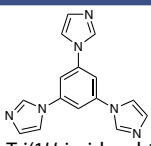
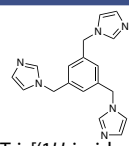
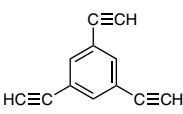
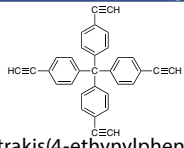


cis-1,2-Cyclohexanedicarboxylic Acid
CAS RN: 610-09-3

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| C0474 25g 500g trans-1,2-Cyclohexanedicarboxylic Acid CAS RN: 2305-32-0 | N0753 5g 25g 2,3-Norbornanedicarboxylic Acid CAS RN: 1724-08-9 | N1029 5g 25g 5-Norbornene-2,3-dicarboxylic Acid CAS RN: 3813-52-3 | D4383 1g Decahydro-1,4-naphthalene-dicarboxylic Acid (mixture of isomers) CAS RN: 879360-14-2 | A1358 5g 25g 1,3-Dicarboxyadamantane CAS RN: 39269-10-8 |
| A1357 5g 1,3-Adamantanediacetic Acid CAS RN: 17768-28-4 | T0166 25g 500g Terephthalic Acid CAS RN: 100-21-0 | C3862 5g 25g 2,3,5,6-Tetrachloroterephthalic Acid CAS RN: 2136-79-0 | T0930 1g 5g Tetrafluoroterephthalic Acid CAS RN: 652-36-8 | D2208 5g 25g 2,5-Dimethylterephthalic Acid CAS RN: 6051-66-7 |
| D1698 1g 5g 2,5-Dichloroterephthalic Acid CAS RN: 13799-90-1 | B1321 5g 25g Bromoterephthalic Acid CAS RN: 586-35-6 | D3994 5g 25g 2,5-Dibromoterephthalic Acid CAS RN: 13731-82-3 | H1385 1g 5g 2-Hydroxyterephthalic Acid CAS RN: 636-94-2 | D3899 5g 25g 2,5-Dihydroxyterephthalic Acid CAS RN: 610-92-4 |
| A1291 25g 2-Aminoterephthalic Acid CAS RN: 10312-55-7 | N0272 5g 25g Nitroterephthalic Acid CAS RN: 610-29-7 | M3640 1g 2-Methylterephthalic Acid CAS RN: 5156-01-4 | I0155 25g 500g Isophthalic Acid CAS RN: 121-91-5 | B4232 1g 5g 5-Bromoisophthalic Acid CAS RN: 23351-91-9 |
| H0794 25g 500g 5-Hydroxyisophthalic Acid CAS RN: 618-83-7 | M1835 5g 5-Methoxyisophthalic Acid CAS RN: 46331-50-4 | A1290 25g 100g 500g 5-Aminoisophthalic Acid CAS RN: 99-31-0 | N0520 25g 500g 5-Nitroisophthalic Acid CAS RN: 618-88-2 | T1374 1g 5g Tetrafluoroisophthalic Acid CAS RN: 1551-39-9 |
| P0287 25g 500g Phthalic Acid CAS RN: 88-99-3 | F0353 5g 3-Fluorophthalic Acid CAS RN: 1583-67-1 | A1516 1g 5g 3-Aminophthalic Acid CAS RN: 5434-20-8 | N0243 25g 500g 3-Nitrophthalic Acid CAS RN: 603-11-2 | M0560 25g 500g 4-Methylphthalic Acid CAS RN: 4316-23-8 |
| H0609 5g 4-Hydroxyphthalic Acid CAS RN: 610-35-5 | M1432 1g 5g 4-Methoxyphthalic Acid CAS RN: 1885-13-8 | A1512 5g 25g 4-Aminophthalic Acid CAS RN: 5434-21-9 | N0244 25g 500g 4-Nitrophthalic Acid CAS RN: 610-27-5 | B2257 1g 5g 25g 4-Bromophthalic Acid CAS RN: 6968-28-1 |
| D2350 1g 5g 4,5-Dichlorophthalic Acid CAS RN: 56962-08-4 | D6038 1g 5g 4,5-Difluorophthalic Acid CAS RN: 18959-31-4 | T0986 5g 25g Tetrafluorophthalic Acid CAS RN: 652-03-9 | T0070 25g 500g Tetrachlorophthalic Acid Hemihydrate CAS RN: 632-58-6 | B1191 5g 25g 4,4'-Bibenzoic Acid CAS RN: 787-70-2 |

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|---|---|--|---|---|
| <p>D0864 25g 100g</p>  <p>2,2'-Bibenzoic Acid CAS RN: 482-05-3</p> | <p>N0526 5g 25g</p>  <p>2,3-Naphthalenedicarboxylic Acid CAS RN: 2169-87-1</p> | <p>N0606 25g 100g</p>  <p>1,4-Naphthalenedicarboxylic Acid CAS RN: 605-70-9</p> | <p>N0377 5g 25g 100g</p>  <p>2,6-Naphthalenedicarboxylic Acid CAS RN: 1141-38-4</p> | <p>A1681 1g</p>  <p>Anthraquinone-2,3-dicarboxylic Acid CAS RN: 27485-15-0</p> |
| <p>D2115 25g 100g</p>  <p>4,4'-Dicarboxydiphenyl Ether CAS RN: 2215-89-6</p> | <p>A1596 1g 5g</p>  <p>4,4'-Azodibenzoic Acid CAS RN: 586-91-4</p> | <p>T2347 5g 25g</p>  <p>2,5-Thiophenedicarboxylic Acid CAS RN: 4282-31-9</p> | <p>C2029 5g 25g</p>  <p>1,3,5-Cyclohexanetricarboxylic Acid (cis- and trans- mixture) CAS RN: 25357-95-3</p> | <p>B0043 25g 100g 500g</p>  <p>1,3,5-Benzenetricarboxylic Acid CAS RN: 554-95-0</p> |
| <p>H1592 5g</p>  <p>Hemimellitic Acid CAS RN: 569-51-7</p> | <p>B0042 25g 100g 500g</p>  <p>Trimellitic Acid CAS RN: 528-44-9</p> | <p>B5795 1g</p>  <p>[1,1'-Biphenyl]-3,4',5'-tricarboxylic Acid CAS RN: 677010-20-7</p> | <p>T2647 1g 5g</p>  <p>1,3,5-Tris(4-carboxyphenyl)-benzene CAS RN: 50446-44-1</p> | <p>C2502 1g</p>  <p>1,2,3,4-Cyclobutane-tetracarboxylic Acid CAS RN: 53159-92-5</p> |
| <p>C0856 5g 25g</p>  <p>1,2,3,4-Cyclopentane-tetracarboxylic Acid CAS RN: 3724-52-5</p> | <p>C2198 5g 25g</p>  <p>1,2,4,5-Cyclohexane-tetracarboxylic Acid CAS RN: 15383-49-0</p> | <p>B0039 25g 100g 500g</p>  <p>Pyromellitic Acid CAS RN: 89-05-4</p> | <p>B3792 200mg</p>  <p>Biphenyl-3,3',5,5'-tetracarboxylic Acid CAS RN: 4371-28-2</p> | <p>D6361 1g 5g</p>  <p>3,3',5,5'-Azobenzene-tetracarboxylic Acid CAS RN: 365549-33-3</p> |
| <p>N0770 25g 250g</p>  <p>1,4,5,8-Naphthalenetetracarboxylic Acid (contains Monoanhydride) CAS RN: 128-97-2</p> | <p>T0975 25g 500g</p>  <p>Tetrahydrofuran-2,3,4,5-tetracarboxylic Acid CAS RN: 26106-63-8</p> | <p>A5015 100mg 1g</p>  <p>TCPP CAS RN: 14609-54-2</p> | <p>B0952 5g 25g</p>  <p>Benzenepentacarboxylic Acid CAS RN: 1585-40-6</p> | <p>B0246 5g 25g</p>  <p>Mellitic Acid CAS RN: 517-60-2</p> |
| <p>P0421 25g 100g 500g</p>  <p>Picolinic Acid CAS RN: 98-98-6</p> | <p>N0082 25g 500g</p>  <p>Nicotinic Acid CAS RN: 59-67-6</p> | <p>I0207 25g 500g</p>  <p>Isonicotinic Acid CAS RN: 55-22-1</p> | <p>P0550 25g 500g</p>  <p>Quinolinic Acid CAS RN: 89-00-9</p> | <p>P2416 5g 25g</p>  <p>2,4-Lutidinic Acid CAS RN: 499-80-9</p> |
| <p>P0552 25g</p>  <p>Isocinchomeronic Acid CAS RN: 100-26-5</p> | <p>P0554 25g 100g 500g</p>  <p>Dipicolinic Acid CAS RN: 499-83-2</p> | <p>P0682 5g 25g</p>  <p>Cinchomeronic Acid CAS RN: 490-11-9</p> | <p>P0551 5g 25g</p>  <p>3,5-Pyridinedicarboxylic Acid CAS RN: 499-81-0</p> | <p>I0003 5g</p>  <p>1H-Imidazole-4,5-dicarboxylic Acid CAS RN: 570-22-9</p> |
| <p>P1048 5g 25g</p>  <p>Pyrazole-3,5-dicarboxylic Acid Monohydrate CAS RN: 303180-11-2</p> | <p>P0545 25g</p>  <p>2,3-Pyrazinedicarboxylic Acid CAS RN: 89-01-0</p> | <p>B3533 1g 5g</p>  <p>2,2'-Bipyridine-6,6'-dicarboxylic Acid CAS RN: 4479-74-7</p> | <p>B3502 1g 5g</p>  <p>2,2'-Bipyridine-5,5'-dicarboxylic Acid CAS RN: 1802-30-8</p> | <p>B1876 100mg 1g</p>  <p>2,2'-Biisonicotinic Acid CAS RN: 6813-38-3</p> |

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| <p>B3622 1g</p>  <p>2,2'-Bipyridine-3,3'-dicarboxylic Acid CAS RN: 4433-01-6</p> | <p>S0850 5g 25g</p>  <p>Salicylaldehyde Azine CAS RN: 959-36-4</p> | <p>T3894 200mg 1g</p>  <p>1,2,4,5-Tetrakis(4-carboxyphenyl)benzene CAS RN: 1078153-58-8</p> | <p>T3896 1g</p>  <p>Tetrakis(4-carboxyphenyl)methane CAS RN: 160248-28-2</p> | |
| <h2>含窒素有機リンカー</h2> | | | | |
| <p>I0001 25g 100g 500g</p>  <p>Imidazole CAS RN: 288-32-4</p> | <p>M0345 25g 100g 500g</p>  <p>2-Methylimidazole CAS RN: 693-98-1</p> | <p>T4344 1g 5g</p>  <p>TABQ CAS RN: 1128-13-8</p> | <p>D0134 25g 100g 500g</p>  <p>DABCO CAS RN: 280-57-9</p> | <p>H0093 25g 500g</p>  <p>HMTA CAS RN: 100-97-0</p> |
| <p>P0544 25g 500g</p>  <p>Pyrazine CAS RN: 290-37-9</p> | <p>B0468 25g 100g 500g</p>  <p>2,2'-Bipyridyl CAS RN: 366-18-7</p> | <p>B3984 1g 5g</p>  <p>3,3'-Bipyridyl CAS RN: 581-46-4</p> | | |
| <p>B0469 25g 100g</p>  <p>4,4'-Bipyridyl CAS RN: 553-26-4</p> | <p>B0863 1g 5g</p>  <p>2,4'-Bipyridyl CAS RN: 581-47-5</p> | <p>D4358 1g</p>  <p>5,5'-Dibromo-2,2'-bipyridyl CAS RN: 15862-18-7</p> | <p>P0221 1g 25g</p>  <p>1,10-Phenanthroline Monohydrate CAS RN: 5144-89-8</p> | <p>B4297 100mg 500mg</p>  <p>2,2'-Bipyrazine CAS RN: 10199-00-5</p> |
| <p>B2496 200mg 1g</p>  <p>2,2'-Bipyrimidyl CAS RN: 34671-83-5</p> | <p>D0276 10g 25g</p>  <p>1,2-Di(4-pyridyl)ethylene CAS RN: 13362-78-2</p> | <p>D3752 1g 5g</p>  <p>1,2-Di(4-pyridyl)ethane CAS RN: 4916-57-8</p> | <p>D0938 25g 500g</p>  <p>1,3-Di(4-pyridyl)propane CAS RN: 17252-51-6</p> | <p>P1550 200mg 1g</p>  <p>1,4-Di(4-pyridyl)benzene CAS RN: 113682-56-7</p> |
| <p>D4203 200mg 1g</p>  <p>4,4'-Di(4-pyridyl)biphenyl CAS RN: 319430-87-0</p> | <p>A3673 200mg 1g</p>  <p>1,2-Di(pyridin-4-yl)diazene CAS RN: 2632-99-7</p> | <p>D6531 1g 5g</p>  <p>2,5-Di(pyridin-4-yl)-thiazolo[5,4-d]thiazole CAS RN: 97193-46-9</p> | <p>D3211 1g 5g</p>  <p>3,6-Di(4-pyridyl)-1,2,4,5-tetrazine CAS RN: 57654-36-1</p> | <p>D3640 1g 5g</p>  <p>3,6-Di(2-pyridyl)-1,2,4,5-tetrazine CAS RN: 1671-87-0</p> |
| <p>B4023 1g 5g</p>  <p>1,4-Bis[(1H-imidazol-1-yl)methyl]benzene CAS RN: 56643-83-5</p> | <p>T1937 1g 5g</p>  <p>2,4,6-Tri(4-pyridyl)-1,3,5-triazine (purified by sublimation) CAS RN: 42333-78-8</p> | <p>T4263 1g</p>  <p>Tetra(4-pyridylphenyl)ethylene CAS RN: 1227195-24-5</p> | <p>D4152 1g 5g</p>  <p>N,N'-Di(4-pyridyl)-1,4,5,8-naphthalenetetracarboxydiimide CAS RN: 34151-49-0</p> | <p>T2222 1g 5g</p>  <p>5,10,15,20-Tetra(4-pyridyl)porphyrin CAS RN: 16834-13-2</p> |
| <p>A1291 25g</p>  <p>2-Aminoterephthalic Acid CAS RN: 10312-55-7</p> | <p>A1290 25g 100g 500g</p>  <p>5-Aminoisophthalic Acid CAS RN: 99-31-0</p> | <p>A1516 1g 5g</p>  <p>3-Aminophthalic Acid CAS RN: 5434-20-8</p> | <p>A1512 5g 25g</p>  <p>4-Aminophthalic Acid CAS RN: 5434-21-9</p> | <p>P0421 25g 100g 500g</p>  <p>Picolinic Acid CAS RN: 98-98-6</p> |

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|--|---|---|--|--|
| <p>N0082 25g 500g</p>  <p>Nicotinic Acid CAS RN: 59-67-6</p> | <p>I0207 25g 500g</p>  <p>Isonicotinic Acid CAS RN: 55-22-1</p> | <p>P0550 25g 500g</p>  <p>Quinolinic Acid CAS RN: 89-00-9</p> | <p>P2416 5g 25g</p>  <p>2,4-Lutidinic Acid CAS RN: 499-80-9</p> | <p>P0552 25g</p>  <p>Isocinchomeronic Acid CAS RN: 100-26-5</p> |
| <p>P0554 25g 100g 500g</p>  <p>Dipicolinic Acid CAS RN: 499-83-2</p> | <p>P0682 5g 25g</p>  <p>Cinchomeronic Acid CAS RN: 490-11-9</p> | <p>P0551 5g 25g</p>  <p>3,5-Pyridinedicarboxylic Acid CAS RN: 499-81-0</p> | <p>I0003 5g</p>  <p>1H-Imidazole-4,5-dicarboxylic Acid CAS RN: 570-22-9</p> | <p>P0545 25g</p>  <p>2,3-Pyrazinedicarboxylic Acid CAS RN: 89-01-0</p> |
| <p>P1048 5g 25g</p>  <p>Pyrazole-3,5-dicarboxylic Acid Monohydrate CAS RN: 303180-11-2</p> | <p>B3533 1g 5g</p>  <p>2,2'-Bipyridine-6,6'-dicarboxylic Acid CAS RN: 4479-74-7</p> | <p>B3502 1g 5g</p>  <p>2,2'-Bipyridine-5,5'-dicarboxylic Acid CAS RN: 1802-30-8</p> | <p>B1876 100mg 1g</p>  <p>2,2'-Biisonicotinic Acid CAS RN: 6813-38-3</p> | <p>B3622 1g</p>  <p>2,2'-Bipyridine-3,3'-dicarboxylic Acid CAS RN: 4433-01-6</p> |
| <p>D4273 200mg</p>  <p>2,2'-Diamino-4,4'-bithiazole CAS RN: 58139-59-6</p> | <p>D5777 1g 5g</p>  <p>4,4'-Di(1H-imidazol-1-yl)-1,1'-biphenyl CAS RN: 855766-92-6</p> | <p>T3903 1g</p>  <p>1,3,5-Tri(1H-imidazol-1-yl)benzene CAS RN: 528543-96-6</p> | <p>T3479 1g 5g</p>  <p>1,3,5-Tris((1H-imidazol-1-yl)methyl)benzene CAS RN: 147951-02-8</p> | |
| <p>その他の有機リンカー</p> | | | | |
| | | <p>T2760 1g 5g</p>  <p>1,3,5-Triethynylbenzene CAS RN: 7567-63-7</p> | <p>T3151 100mg 1g</p>  <p>Tetrakis(4-ethynylphenyl)methane CAS RN: 177991-01-4</p> | |

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