

## 1.1.2

## USP COLUMN SUGGESTIONS

In this part we recommend HPLC Columns by different brands for the United States Pharmacopoeia (USP). Generally, the USP only suggests the column material (packing) but not the dimensions like length, internal diameter etc. You can find the column that suits your need in our column configurator online:

[www.analytix-shop.com/gb/hplc-column-configurator.html](http://www.analytix-shop.com/gb/hplc-column-configurator.html)

#### USP L1: Octadecylsilane, chemically linked to porous silica or ceramic micro particles, 1.8 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL     | ORDER NUMBER    | DESCRIPTION                                             | PACK SIZE |
|----------|------------------------|-----------------|---------------------------------------------------------|-----------|
| Altmann  | Reposil Pur C18-AQ, 5µ | NRSPU9Q-5025046 | Reposil Pur, C18-AQ, 5µm, 250x4.6mm                     | 1 Piece   |
| Altmann  | Reposil 80 ODS-2, 5µ   | NRS802-5025046  | Reposil 80, ODS-2, 5µm, 250x4.6mm                       | 1 Piece   |
| Merck    | LiChrospher RP-18, 5µ  | 1.50602.0001    | LiChroCART, LiChrospher RP-18, 5µm, 250x4.6mm Cartridge | 1 Piece   |
| Merck    | Purospher RP-18, 5µ    | 1.50144.0001    | LiChroCART Purospher, RP-18, 5µm, 250x4mm Cartridge     | 1 Piece   |
| Waters   | Spherisorb ODS-2, 5µ   | PSS831915       | Spherisorb, ODS <sub>2</sub> , 5µm, 250x4.6mm           | 1 Piece   |
| Waters   | Symmetry C18, 5µ       | WAT054275       | Symmetry, C18, 5µm, 250x4.6mm                           | 1 Piece   |

#### USP L3: Porous silica particles, 5 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL   | ORDER NUMBER     | DESCRIPTION                                          | PACK SIZE |
|----------|----------------------|------------------|------------------------------------------------------|-----------|
| Altmann  | Reposil-Pur Si       | NRS-PU9S-5025046 | Reposil Pur, 120 Si, 5µm, 250x4.6mm                  | 1 Piece   |
| Altmann  | Reposil 80 Si        | NRS8S-5025046    | Reposil, 80 Si, 5µm, 250x4.6mm                       | 1 Piece   |
| Merck    | LiChrospher Si 100   | 1.50316.0001     | Hibar LiChrospher, Si 100, 5µm, 250x4mm              | 1 Piece   |
| Merck    | Superspher Si 60, 4µ | 1.46009.0001     | LiChroCART Superspher, Si 60, 4µm, 250x4mm Cartridge | 1 Piece   |

#### USP L7: Octylsilane, chemically bound to porous silica, 1.8 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER     | DESCRIPTION                           | PACK SIZE |
|----------|--------------------|------------------|---------------------------------------|-----------|
| Altmann  | Reposil Gold C8    | NRSG9C8-10025046 | Reposil, Gold 120 C8, 10µm, 250x4.6mm | 1 Piece   |

| PRODUCER | SUGGESTED MATERIAL                | ORDER NUMBER     | DESCRIPTION                                                         | PACK SIZE |
|----------|-----------------------------------|------------------|---------------------------------------------------------------------|-----------|
| Altmann  | Reposil-Pur Basic C8 (HD)         | NRSPUB8-10025046 | Reposil, Pur-Basic C8, 10µm, 250x4.6mm                              | 1 Piece   |
| Altmann  | Repospher C8 (DE)                 | NRE1C8-3025046   | Repospher, 100 C8, 3µm, 250x4.6mm                                   | 1 Piece   |
| Waters   | Symmetry C8                       | WAT054270        | Symmetry, C8, 5µm, 4.6x250mm                                        | 1 Piece   |
| Waters   | XBridge C8                        | 186003018        | XBridge, C8, 5µm, 4.6x250mm                                         | 1 Piece   |
| Merck    | Purospher STAR RP-8 end capped 5µ | 1.50275.0001     | LiChroCART Purospher STAR, RP-8 end capped, 5µm, 250x2mm, Cartridge | 1 Piece   |

#### USP L8: Aminopropyl silane groups on porous silica, 3 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL                | ORDER NUMBER    | DESCRIPTION                                                             | PACK SIZE |
|----------|-----------------------------------|-----------------|-------------------------------------------------------------------------|-----------|
| Altmann  | Reposil 100 NH <sub>2</sub>       | NRS1N-5025046   | Reposil, 100 NH <sub>2</sub> , 5µm, 250x4.6mm                           | 1 Piece   |
| Altmann  | Reposil-Pur NH <sub>2</sub>       | NRSPU9N-5025046 | Reposil Pur, 120 NH <sub>2</sub> , 5µm, 250x4.6mm                       | 1 Piece   |
| Altmann  | Equisil APS                       | NEQAPS-5025046  | Equisil, APS, 5µm, 250x4.6mm                                            | 1 Piece   |
| Waters   | µBondapak NH <sub>2</sub>         | WAT084040       | µBondapak, NH <sub>2</sub> SS, 125Å, 10µm, 3.9x300mm                    | 1 Piece   |
| Waters   | Spherisorb NH <sub>2</sub>        | PSS831115       | Spherisorb, NH <sub>2</sub> , 80Å, 5µm, 250x4.6mm                       | 1 Piece   |
| Merck    | LiChrospher NH <sub>2</sub> 10µ   | 1.50844.0001    | LiChroCART LiChrospher, 100 NH <sub>2</sub> , 10µm, 150x4.6mm Cartridge | 1 Piece   |
| Merck    | Purospher STAR NH <sub>2</sub> 5µ | 1.50245.0001    | LiChroCART Purospher STAR, NH <sub>2</sub> , 5µm, 250x4mm Cartridge     | 1 Piece   |

#### USP L9: Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic cation-exchange coating, 3 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER   | DESCRIPTION                                         | PACK SIZE |
|----------|--------------------|----------------|-----------------------------------------------------|-----------|
| Altmann  | Reposil 80 SCX     | NRS8SC-5025046 | Reposil, 80 SCX, 5µm, 250x4.6mm                     | 1 Piece   |
| Altmann  | Reposil Saphir SCX | NRS1SC-5025046 | Reposil, 100 Saphir SCX, 5µm, 250x4.6mm             | 1 Piece   |
| Waters   | Spherisorb SCX     | PSS837585      | Spherisorb S <sub>5</sub> , SCX, 80Å, 5µm, 10x250mm | 1 Piece   |

| PRODUCER                                                                        | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                                              | PACK SIZE |
|---------------------------------------------------------------------------------|---------------------|----------------|----------------------------------------------------------|-----------|
| Waters                                                                          | Spherisorb SCX      | PSS837595      | Spherisorb S5, SCX, 80Å, 5µm, 4.6x250mm                  | 1 Piece   |
| USP L10: Cyano (Nitrile) groups bound to porous silica, 3 to 10µm particle size |                     |                |                                                          |           |
| PRODUCER                                                                        | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                                              | PACK SIZE |
| Altmann                                                                         | Reprosil 100 CN     | NRS1CN-3025046 | Reprosil, 100 CN, 3µm, 250x4.6mm                         | 1 Piece   |
| Altmann                                                                         | Reprosil 80 CN      | NRS8CN-5025046 | Reprosil, 80 CN, 5µm, 250x4.6mm                          | 1 Piece   |
| Altmann                                                                         | Equisil CPS         | NEQCP-5025046  | Equisil, CPS, 5µm, 250x4.6mm                             | 1 Piece   |
| Waters                                                                          | µBondapak CN        | WATO86688      | µBondapak, CN, 125Å, 10µm, 3.9x150mm                     | 1 Piece   |
| Waters                                                                          | Spherisorb CN       | PSS830915      | Spherisorb, CN, 5µm, 250x4.6mm                           | 1 Piece   |
| Merck                                                                           | LiChrospher CN 10µ  | 1.50845.0001   | LiChroCART, LiChrospher, 100 CN, 10µm, 250x4mm Cartridge | 1 Piece   |
| Merck                                                                           | LiChrospher CN 5µ   | 1.50892.0001   | LiChroCART, LiChrospher, 100 CN, 5µm, 250x4mm Cartridge  | 1 Piece   |

USP L11: Phenyl groups chemically bonded to porous silica particles, 3 to 10µm particle size

| PRODUCER | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                          | PACK SIZE |
|----------|---------------------|----------------|--------------------------------------|-----------|
| Altmann  | Reprosil 100 Phenyl | NRS1PH-3025046 | Reprosil, 100 Phenyl, 3µm, 250x4.6mm | 1 Piece   |
| Altmann  | Reprosil 80 Phenyl  | NRS8PH-3025046 | Reprosil, 80 Phenyl, 3µm, 250x4.6mm  | 1 Piece   |
| Waters   | XBridge Phenyl 5µ   | 186003353      | XBridge, Phenyl, 5µm, 250x4.6mm      | 1 Piece   |
| Waters   | XTerra Phenyl 5µ    | 186001147      | XTerra, Phenyl, 5µm, 250x4.6mm       | 1 Piece   |

USP L13: Trimethylsilane chemically bonded to porous silica particles, 3 to 10µm particle size

| PRODUCER | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                          | PACK SIZE |
|----------|---------------------|----------------|--------------------------------------|-----------|
| Altmann  | Reprosil-Pur C1     | NRSPU1-5025046 | Reprosil Pur, 120 C1, 5µm, 250x4.6mm | 1 Piece   |

| PRODUCER | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                         | PACK SIZE |
|----------|---------------------|----------------|-------------------------------------|-----------|
| Altmann  | Reprosil 80 C1      | NRS8C1-5025046 | Reprosil, 80 C1, 5µm, 250x4.6mm     | 1 Piece   |
| Waters   | Spherisorb C1 5µ    | PSS832615      | Spherisorb, C1, 80Å, 5µm, 250x4.6mm | 1 Piece   |
| Waters   | Spehrisorb C1 3µ    | PSS832913      | Spherisorb, C1, 80Å, 3µm, 150x4.6mm | 1 Piece   |

USP L14: Silica gel having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating, 5 to 10µm particle size

| PRODUCER | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                         | PACK SIZE |
|----------|---------------------|----------------|-------------------------------------|-----------|
| Altmann  | Reprosil 80 SAX     | NRS8SX-5025046 | Reprosil, 80 SAX, 5µm, 250x4.6mm    | 1 Piece   |
| Waters   | Spherisorb SAX 5µ   | PSS832795      | Spherisorb, SAX, 80Å, 5µm, 250x20mm | 1 Piece   |

USP L15: Hexyl silane chemically bonded to totally porous silica particles, 3 to 10µm particle size

| PRODUCER | SUGGESTED MA-TERIAL | ORDER NUMBER   | DESCRIPTION                         | PACK SIZE |
|----------|---------------------|----------------|-------------------------------------|-----------|
| Altmann  | Reprosil 80 C6      | NRS8HE-5025046 | Reprosil, 80 Hexyl, 5µm, 250x4.6mm  | 1 Piece   |
| Waters   | Spherisorb C6 5µ    | PSS831015      | Spherisorb, C6, 80Å, 5µm, 250x4.6mm | 1 Piece   |
| Waters   | SpherisorbC6 5µ     | PSS831013      | Spherisorb, C6, 80Å, 5µm, 150x4.6mm | 1 Piece   |

USP L16: Dimethyl silane chemically bonded to totally porous silica particles, 3 to 10µm particle size

| PRODUCER | SUGGESTED MA-TERIAL  | ORDER NUMBER     | DESCRIPTION                         | PACK SIZE |
|----------|----------------------|------------------|-------------------------------------|-----------|
| Altmann  | Reprosil Gold 120 C2 | NRS-G9C2-5025040 | Reprosil, Gold 120 C2, 5µm, 250x4mm | 1 Piece   |
| Altmann  | Reprosil Gold 300 C2 | NRS3C2-5025040   | Reprosil, Gold 300 C2, 5µm, 250x4mm | 1 Piece   |

USP L17: Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogenated form (H+), 7 to 11µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|         |                       |              |                                       |         |
|---------|-----------------------|--------------|---------------------------------------|---------|
| Altmann | Reprogel H+, 9µ       | NRGH-9025080 | Repro-Gel, H, 9µm, 250x8mm            | 1 Piece |
| Waters  | IC-pak cation         | WAT007354    | IC-PAK, CATION, 10µm, 50x4.6mm        | 1 Piece |
| Waters  | IC -pak ion exclusion | WAT010295    | IC-PAK, ION EXCLUSION, 7µm, 150x7.8mm | 1 Piece |

**USP L18: Amino and cyano groups chemically bonded to porous silica particles, 3 to 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL | BEISPIEL ART. NR. | DESCRIPTION | PACK SIZE |
|----------|--------------------|-------------------|-------------|-----------|
|----------|--------------------|-------------------|-------------|-----------|

|         |             |              |                            |         |
|---------|-------------|--------------|----------------------------|---------|
| Altmann | Repro-Gel H | NPSP-5025040 | Repro-Gel, H, 9µm, 250x8mm | 1 Piece |
|---------|-------------|--------------|----------------------------|---------|

**USP L19: Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the Calcium form (Ca++), 9µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|         |               |               |                              |         |
|---------|---------------|---------------|------------------------------|---------|
| Altmann | Reprogel Ca++ | NRGCA-9025080 | Repro-Gel, Ca, 9µm, 250x8mm  | 1 Piece |
| Waters  | Sugar-Pak 1   | WAT085188     | SUGAR, PAK 1, 9µm, 300x6.5mm | 1 Piece |

**USP L20: Dihydroxypropane groups chemically bonded to porous silica particles, 5 to 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|         |                   |                  |                                        |         |
|---------|-------------------|------------------|----------------------------------------|---------|
| Altmann | Reprosil 100 Diol | NRS1D-5025046    | Reprosil, 100 Diol, 5µm, 250x4.6mm     | 1 Piece |
| Altmann | Reprosil-Pur Diol | NRS-PU9D-5025046 | Reprosil Pur, 120 Diol, 5µm, 250x4.6mm | 1 Piece |

|         |                  |               |                                   |         |
|---------|------------------|---------------|-----------------------------------|---------|
| Altmann | Reprosil 80 Diol | NRS8D-5025046 | Reprosil, 80 Diol, 5µm, 250x4.6mm | 1 Piece |
|---------|------------------|---------------|-----------------------------------|---------|

|        |                |           |                                    |         |
|--------|----------------|-----------|------------------------------------|---------|
| Waters | Protein-Pak 60 | WAT085250 | Protein-PAK 60A, 10µm, 300x7.8mm   | 1 Piece |
| Waters | BioSuite 250   | 186002170 | BioSuite 250, SEC, 10µm, 300x7.5mm | 1 Piece |

|       |                     |              |                                                          |         |
|-------|---------------------|--------------|----------------------------------------------------------|---------|
| Merck | LiChrospher Diol 5µ | 1.50826.0001 | LiChroCART LiChrospher, 100 Diol, 5µm, 125x4mm Cartridge | 1 Piece |
|-------|---------------------|--------------|----------------------------------------------------------|---------|

**USP L21: Rigid, spherical styrene-divinylbenzene copolymer, 5 to 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|         |                  |                 |                                    |         |
|---------|------------------|-----------------|------------------------------------|---------|
| Altmann | Repromer 100 RPS | NRM1RS-10025046 | Repromer, 100 RPS, 10µm, 250x4.6mm | 1 Piece |
|---------|------------------|-----------------|------------------------------------|---------|

|         |                   |                  |                                     |         |
|---------|-------------------|------------------|-------------------------------------|---------|
| Altmann | Repromer 300 RPS  | NRM-3RS-10025046 | Repromer, 300 RPS, 10µm, 250x4.6mm  | 1 Piece |
| Altmann | Repromer 1000 RPS | NRM0RS-8025046   | Repromer, 1000 RPS, 8µm, 250x4.6mm  | 1 Piece |
| Waters  | Styragel HR4E     | WAT044240        | Styragel HR4E (THF), 5µm, 300x7.8mm | 1 Piece |
| Waters  | Shodex RSpak 613  | WAT034220        | Rspak, DS-613, 1000A, 6µm, 150x6mm  | 1 Piece |

**USP L22: A cation exchange resin made of porous polystyrene gel with sulfonic acid groups, approx. 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|         |              |                |                                      |         |
|---------|--------------|----------------|--------------------------------------|---------|
| Altmann | Repromer SCX | NRMSC-10025046 | Repromer, SCX, 100A, 10µm, 250x4.6mm | 1 Piece |
|---------|--------------|----------------|--------------------------------------|---------|

|        |                      |           |                                           |         |
|--------|----------------------|-----------|-------------------------------------------|---------|
| Waters | IC-Pak Ion exclusion | WAT010290 | ICPak, Ion Exclusion, 7µm, 300x7.8mm      | 1 Piece |
| Waters | Shodex SP-o810       | WAT036954 | Shodex-Column, SUGAR SP0810, 8µm, 300x8mm | 1 Piece |

**USP L23: An anion exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, approx. 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|        |                   |          |                                          |         |
|--------|-------------------|----------|------------------------------------------|---------|
| Shodex | Shodex IEC QA-825 | F6110011 | Shodex, IEC QA-825, 5.000A, 12µm, 8x75mm | 1 Piece |
|--------|-------------------|----------|------------------------------------------|---------|

**USP L25: Packing having the capacity to separate compounds with a MW range from 100 to 5000 daltons (determined with polyethylene oxide), applied to neutral, anionic, and cationic water-soluble polymers. A polymethacrylate resin base, crosslinked with poly-hydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable.**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION | PACK SIZE |
|----------|--------------------|--------------|-------------|-----------|
|----------|--------------------|--------------|-------------|-----------|

|        |                        |          |                                                    |         |
|--------|------------------------|----------|----------------------------------------------------|---------|
| Shodex | Shodex OHPak SB-802 HQ | F6429100 | Shodex-Column, OHPak SB-802 HQ, 100A, 8µm, 300x8mm | 1 Piece |
|--------|------------------------|----------|----------------------------------------------------|---------|

**USP L26: Butyl silane chemically bonded to totally porous silica particles, 5 to 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL           | ORDER NUMBER    | DESCRIPTION                               | PACK SIZE |
|----------|------------------------------|-----------------|-------------------------------------------|-----------|
| Altmann  | Reprosil 100 C4              | NRS1C4-5025046  | Reprosil, 100 C4, 5µm, 250x4.6mm          | 1 Piece   |
| Altmann  | Reprosil-Pur C4              | NRSPU94-5025046 | Reprosil Pur, 120 C4, 5µm, 250x4.6mm      | 1 Piece   |
| Altmann  | Reprosil Gold C4             | NRSG9C4-5025046 | Reprosil, Gold 120 C4, 5µm, 250x4.6mm     | 1 Piece   |
| Waters   | Acquity UPLC BEH 300 C4 1.7µ | 186004497       | ACQUITY UPLC, BEH300 C4, 1.7µm, 150x2.1mm | 1 Piece   |
| Waters   | Symmetry 300 C4              | 186000283       | Symmetry, 300 C4, 3-5µm, 150x4.6mm        | 1 Piece   |

**USP L32: A chiral ligand-exchange packing- L-proline copper complex covalently bonded to irregularly shaped silica particles, 5 to 10µm particle size**

| PRODUCER | SUGGESTED MATERIAL       | ORDER NUMBER       | DESCRIPTION                             | PACK SIZE |
|----------|--------------------------|--------------------|-----------------------------------------|-----------|
| Altmann  | Reprosil Chiral-L-Prolin | Art. Nr. erstellen | Reprosil, Chiral-L-Prolin, 5µm, 250x4mm | 1 Piece   |

**USP L34: Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form (Pb), about 9µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER  | DESCRIPTION                               | PACK SIZE |
|----------|--------------------|---------------|-------------------------------------------|-----------|
| Altmann  | Reprogel Pb, 9µ    | NRGPB-9025080 | Repro-Gel, Pb, 9µm, 250x8mm               | 1 Piece   |
| Waters   | Shodex SP0810      | WAT036954     | Shodex-Column, SUGAR SP0810, 8µm, 300x8mm | 1 Piece   |

**USP L37: Polymethacrylate gel packing having the capacity to separate proteins by molecular size over a range of 2,000 to 40.000Daltons**

| PRODUCER | SUGGESTED MATERIAL    | ORDER NUMBER | DESCRIPTION                                        | PACK SIZE |
|----------|-----------------------|--------------|----------------------------------------------------|-----------|
| Shodex   | Shodex OHPak SB-803HQ | F6429102     | Shodex-Column, OHPak SB-803 HQ, 800Å, 6µm, 300x8mm | 1 Piece   |

**USP L38: Methacrylate-based size-exclusion packing for water-soluble samples**

| PRODUCER | SUGGESTED MATERIAL     | ORDER NUMBER | DESCRIPTION                                        | PACK SIZE |
|----------|------------------------|--------------|----------------------------------------------------|-----------|
| Shodex   | Shodex OHPak SB-802 HQ | F6429100     | Shodex-Column, OHPak SB-802 HQ, 100Å, 8µm, 300x8mm | 1 Piece   |

**USP L39: Hydrophilic polyhydroxymethacrylate gel of totally porous spherical resin**

| PRODUCER | SUGGESTED MATERIAL     | ORDER NUMBER | DESCRIPTION                                        | PACK SIZE |
|----------|------------------------|--------------|----------------------------------------------------|-----------|
| Shodex   | Shodex OHPak SB-802 HQ | F6429100     | Shodex-Column, OHPak SB-802 HQ, 100Å, 8µm, 300x8mm | 1 Piece   |
| Shodex   | Shodex RSpak DM-614    | F7001002     | Shodex-Column, RSpak DM-614, 200Å, 10µm, 150x6mm   | 1 Piece   |

**USP L40: Cellulose tris-3,5-dimethylphenylcarbamate coated porous silica particles, 5 µm to 20 µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER    | DESCRIPTION                          | PACK SIZE |
|----------|--------------------|-----------------|--------------------------------------|-----------|
| Altmann  | Reprosil Chiral-OM | NRSCHO-10025046 | Reprosil, Chiral-OM, 10µm, 250x4.6mm | 1 Piece   |

**USP L41: Immobilized alpha-acid glycoprotein (a-AGP) on spherical silica particles, 5µm particle size**

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER   | DESCRIPTION                                  | PACK SIZE |
|----------|--------------------|----------------|----------------------------------------------|-----------|
| Altmann  | Reprosil-AGP       | NRSAGP-5015020 | Reprosil, AGP, 5µm, 150x2mm                  | 1 Piece   |
| Chiral   | Chiral-AGP         | 30794          | Chiral Technologie, Chiral-AGP, 5µm, 150x2mm | 1 Piece   |

**USP L43: Pentafluorophenyl groups chemically bonded to silica particles, 5µm to 10µm particle size**

| PRODUCER | EMPHOLENES COLUMN/MATERIAL | ORDER NUMBER   | DESCRIPTION                                | PACK SIZE |
|----------|----------------------------|----------------|--------------------------------------------|-----------|
| Altmann  | Reprosil Fluosil PFP       | NRSF1P-5025046 | Reprosil, Fluosil 100 PFP, 5µm, 250x4.6mm  | 1 Piece   |
| Waters   | XSelect CSH F1-Ph 5µ       | 186003346      | Xselect, CSH Fluoro-Phenyl, 5µm, 250x4.6mm | 1 Piece   |

USP L45: Beta cyclodextrin bonded to porous silica particles, 5 to 10 µm particle size

| PRODUCER       | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION                              | PACK SIZE |
|----------------|--------------------|--------------|------------------------------------------|-----------|
| Macherey-Nagel | Nucleodex Beta-PM  | 720125.40    | Nucleodex, Beta-PM, 100Å, 5µm, 200x4.0mm | 1 Piece   |

USP L47: High capacity anion-exchange microporous substrate, fully functionalized with a trimethylamine group, 8µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER    | DESCRIPTION              | PACK SIZE |
|----------|--------------------|-----------------|--------------------------|-----------|
| Altmann  | RCX-30             | NHAPRR3-7025046 | RCX-30, 7µm, 250x4.6mm   | 1 Piece   |
| Hamilton | PRP-X110           | 79732           | PRP-X110, 7µm, 150x4.1mm | 1 Piece   |
| Hamilton | RCX-10             | 79440           | RCX-10, 7µm, 250x4.1mm   | 1 Piece   |
| Hamilton | RCX-30             | 79803           | RCX-30, 7µm, 250x4.1mm   | 1 Piece   |

USP L51: Amylose tris-3,5-dimethylphenylcarbamate-coated, porous, spherical, silica particles, 5 to 10µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER   | DESCRIPTION                         | PACK SIZE |
|----------|--------------------|----------------|-------------------------------------|-----------|
| Altmann  | Reprosil Chiral-AM | NRSCHM-5025046 | Reprosil, Chiral-AM, 5µm, 250x4.6mm | 1 Piece   |

USP L57: A chiral-recognition protein, ovomucoid, chemically bonded to silica particles, approx. 5µm particle size with 120 Angström pore size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER | DESCRIPTION                           | PACK SIZE |
|----------|--------------------|--------------|---------------------------------------|-----------|
| Agilent  | Ultron ES-OVM      | 702111651    | Ultron ES-OVM, Chiral, 5µm, 150x4.6mm | 1 Piece   |

USP L58: Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the sodium form (Na+), 7 to 11µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER  | DESCRIPTION                 | PACK SIZE |
|----------|--------------------|---------------|-----------------------------|-----------|
| Altmann  | Reprogel Na+       | NRGNA-9025080 | Repro-Gel, Na, 9µm, 250x8mm | 1 Piece   |

USP L60: Spherical, porous silica gel, surface has been covalently modified with palmitamidopropyl groups and endcapped, 3-5µm particle size

| PRODUCER | SUGGESTED MATERIAL    | ORDER NUMBER   | DESCRIPTION                 | PACK SIZE |
|----------|-----------------------|----------------|-----------------------------|-----------|
| Altmann  | Reprosil ABZ-Amid C18 | NSBAC9-5025046 | ABZ Amid-C18, 5µm 250x4.6mm | 1 Piece   |

USP L62: C30 silane bonded phase on a fully porous spherical silica, 3 to 15µm particle size

| PRODUCER | SUGGESTED MATERIAL | ORDER NUMBER   | DESCRIPTION                       | PACK SIZE |
|----------|--------------------|----------------|-----------------------------------|-----------|
| Altmann  | Stability C30      | NSB1C3-5025046 | Stability, 100 C30, 5µm 250x4.6mm | 1 Piece   |