

# HPLC Column Selection by USP

USP Code	Description	Brand
L1	Octadecyl silane chemically bonded to porous or nonporous silica or ceramic microparticles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	InertSustain C18 InertSustain AQ-C18 InertSustainSwift C18 Inertsil ODS-HL Inertsil ODS-4 Inertsil ODS-3 Inertsil ODS-SP Inertsil ODS-P Inertsil ODS-2 Inertsil ODS Inertsil WP300 C18
L2	Octadecyl silane chemically bonded to silica gel of a controlled surface porosity that has been bonded to a solid spherical core, 30 to 50 µm in diameter.	ECONO PREP ODS
L3	Porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Inertsil SIL-100A Inertsil SIL-150A Inertsil WP300 SIL
L4	Silica gel of controlled surface porosity bonded to a solid spherical core, 30 to 50 µm in diameter.	ECONO PREP SIL
L5	Alumina of controlled surface porosity bonded to a solid spherical core, 30 to 50 µm in diameter.	
L6	Strong cation exchange packing-sulfonated fluorocarbon polymer coated on a solid spherical core, 30 to 50 µm in diameter.	
L7	Octylsilane chemically bonded to totally porous or superficially porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	InertSustain C8 InertSustainSwift C8 Inertsil C8-4 Inertsil C8-3 Inertsil C8 Inertsil WP300 C8
L8	An essentially monomolecular layer of aminopropylsilane chemically bonded to totally porous silica gel support, 1.5 to 10 µm in diameter, or a monolithic silica rod.	InertSustain NH2 Inertsil NH2
L9	Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic cation-exchange coating, 3 to 10 µm in diameter.	Inertsil CX
L10	Nitrile groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	InertSustain Cyano Inertsil CN-3
L11	Phenyl groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	InertSustain Phenylhexyl InertSustain Phenyl Inertsil Ph-3 Inertsil Ph
L12	A strong anion-exchange packing made by chemically bonding a quaternary amine to a solid silica spherical core, 30 to 50 µm in diameter.	
L13	Trimethylsilane chemically bonded to porous silica particles, 3 to 10 µm in diameter.	Spherisorb Methyl
L14	Silica gel having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating, 5 to 10 µm in diameter.	Nucleosil 100-SB Partisil SAX Spherisorb SAX
L15	Hexylsilane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	Spherisorb C6
L16	Dimethylsilane chemically bonded to porous silica particles, 5 to 10 µm in diameter.	
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 6 to 12 µm in diameter.	InertSphere FA-1 PRP-X200, PRP-X300 HC-75(H <sup>+</sup> ) SUGAR SH1011, SH1821 RSpak KC-811 IC Y-521
L18	Amino and cyano groups chemically bonded to porous silica particles, 3 to 10 µm in diameter.	Partisil 5 PAC Partisil 10 PAC
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, about 9 µm in diameter.	HC-75(Ca <sup>2+</sup> ) SUGAR SC1011, SC1821 SUGAR SC1211
L20	Dihydroxypropane groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Inertsil Diol Inertsil WP300 Diol PROTEIN KW-800 series
L21	A rigid, spherical styrene-divinylbenzene copolymer, 3 to 30 µm in diameter.	PRP-1, PRP-3 GPC KF-801 RSpak DS-413, DS-613 RSpak RP18-415
L22	A cation-exchange resin made of porous polystyrene gel with sulfonic acid groups, about 10 µm in size.	PRP-X200, PRP-X300 SUGAR SH1011, SH1821 RSpak KC-811 SUGAR SP0810 SUGAR SC1011, SC1821 SUGAR SZ5532 SUGAR KS800 series IC Y-521

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L23	An anion-exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, about 7 - 12 µm in size.	PRP-X500 IEC QA-825
L24	Polyvinylalcohol chemically bonded to porous silica particle, 5 µm in diameter.	
L25	Packing having the capacity to separate compounds with a molecular weight range from 100-5000 (as determined by polyethylene oxide), applied to neutral, anionic, and cationic water-soluble polymers. A polymethacrylate resin base, cross-linked with polyhydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable.	OHpak SB-802 HQ OHpak SB-802.5 HQ
L26	Butyl silane chemically bonded to totally porous or superficially porous silica particles, 1.5 to 10 µm in diameter.	Inertsil C4 Inertsil WP300 C4
L27	Porous silica particles, 30 to 50 µm in diameter.	
L28	A multifunctional support, which consists of a high purity, 100 Å, spherical silica substrate that has been bonded with anionic exchanger, amine functionality in addition to a conventional reversed phase C8 functionality.	
L29	Gamma alumina, reverse-phase, low carbon percentage by weight, alumina-based polybutadiene spherical particles, 5 µm in diameter with a pore volume of 80 Å.	
L30	Ethyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	
L31	A hydroxide-selective, strong anion-exchange resin-quaternary amine bonded on latex particles attached to a core of 8.5 µm macroporous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene.	
L32	A chiral ligand exchange packing-L-proline copper complex covalently bonded to irregularly shaped silica particles, 5 to 10 µm in diameter.	CHIRALPAK WH
L33	Packing having the capacity to separate dextrans by molecular size over a range of 4,000 to 500,000 Da. It is spherical, silica-based, and processed to provide pH stability.	Inertsil WP300 Diol PROTEIN KW-800 series
L34	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, 7 to 9 µm in diameter.	HC-75(Pb <sup>2+</sup> ) SUGAR SP0810
L35	A zirconium-stabilized spherical silica packing with a hydrophilic (diol-type) molecular monolayer bonded phase having a pore size of 150 Å.	
L36	A 3,5-dinitrobenzoyl derivative of L-phenylglycine covalently bonded to 5 µm aminopropyl silica.	SUMICHIRAL OA-2000
L37	Packing having the capacity to separate proteins by molecular size over a range of 2,000 to 40,000 Da. It is a polymethacrylate gel.	OHpak SB-803 HQ
L38	A methacrylate-based size exclusion packing for water-soluble samples.	OHpak SB-800 HQ series
L39	A hydrophilic polyhydroxymethacrylate gel of totally porous spherical resin.	OHpak SB-800 HQ series RSpak DM-614
L40	Cellulose tris-3,5-dimethylphenylcarbamate coated porous silica particles, 5 to 20 µm in diameter.	CHIRALCEL OD series
L41	Immobilized α1-acid glycoprotein on spherical silica particles, 5 µm in diameter.	CHIRALPAK AGP
L42	Octylsilane and octadecylsilane groups chemically bonded to porous silica particles, 5 µm in diameter.	
L43	Pentafluorophenyl groups chemically bonded to silica particles by a propyl spacer, 1.5 to 10 µm in diameter.	
L44	A multifunctional support, which consists of a high purity, 60 Å, spherical silica substrate that has been bonded with a cationic exchanger, sulfonic acid functionality in addition to a conventional reversed phase C8 functionality.	
L45	Beta cyclodextrin, R,S-hydroxypropyl ether derivative, bonded to porous silica particles, 3 to 10 µm in diameter.	ORpak CDBS-453 SUMICHIRAL OA7000 SUMICHIRAL OA7100
L46	Polystyrene/divinylbenzene substrate agglomerated with quaternary amine functionalized latex beads, about 9 to 11 µm in diameter.	
L47	High capacity anion-exchange microporous substrate, fully functionalized with trimethylamine groups, 8 µm in diameter.	PRP-X100, PRP-X110 RCX-10, RCX-30
L48	Sulfonated, cross-linked polystyrene with an outer layer of submicron, porous, anion-exchange microbeads, 5 to 15 µm in diameter.	
L49	A reversed phase packing made by coating a thin layer of polybutadiene onto spherical porous zirconia particles, 3 to 10 µm in diameter.	
L50	Multifunction resin with reversed-phase retention and strong anion-exchange functionalities. The resin consists of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm in diameter, and a surface area not less than 350 m <sup>2</sup> /g. Substrate is coated with quaternary ammonium functionalized latex particles consisting of styrene cross-linked with divinylbenzene.	
L51	Amylose tris-3,5-dimethylphenylcarbamate-coated, porous, spherical, silica particles, 5 to 10 µm in diameter.	CHIRALPAK AD series
L52	A strong cation-exchange resin made of porous silica with sulfopropyl groups, 5 to 10 µm in diameter.	
L53	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 3 to 15 µm diameter. Substrate is surface grafted with carboxylic acid and/or phosphoric acid functionalized monomers. Capacity not less than 500 µEq/column.	
L54	A size exclusion medium made of covalent bonding of dextran to highly cross-linked porous agarose beads, about 13 µm in diameter.	
L55	A strong cation-exchange resin made of porous silica coated with polybutadiene-maleic acid copolymer, about 5 µm in diameter.	IC-Pak Cation M/D
L56	Propyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	

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L57	A chiral-recognition protein, ovomucoid, chemically bonded to silica particles, about 5 µm in diameter, with a pore size of 120 Å.	
L58	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the sodium form, about 6 to 30 µm diameter.	SUGAR KS 800 series CXpak P-421S
L59	Packing for the size-exclusion separation of proteins (separation by molecular weight) over the range of 5 to 7,000 kDa. The packing is a spherical 1.5 to 10 µm silica of hybrid packing with a hydrophilic coating.	PROTEIN KW-803
L60	Spherical, porous silica gel, 10 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and endcapped.	
L61	A hydroxide selective strong anion-exchange resin consisting of a highly cross-linked core of 13 µm microporous particles having a pore size less than 10 Å units and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene with a latex coating composed of 85 nm diameter microbeads bonded with alkanol quaternary ammonium ions (6 %).	
L62	C30 silane bonded phase on a fully porous spherical silica, 3 to 15 µm in diameter.	
L63	Glycopeptide teicoplanin linked through multiple covalent bonds to a 100-Å units spherical silica.	SUGAR KS 800 series
L64	Strongly basic anion-exchange resin consisting of 8 % cross-linked styrene-divinylbenzene copolymer with a quaternary ammonium group in the chloride form, 45 to 180 µm in diameter.	
L65	Strongly acidic cation-exchange resin consisting of 2 % sulfonated cross-linked styrene-divinylbenzene copolymer with a sulfonic acid group in the hydrogen form, 45 to 250 µm in diameter.	
L66	A crown ether coated on a 5 µm particle size silica gel substrate. The active site is (S)-18-crown-6-ether.	Crownpak CR (+)
L67	Porous vinyl alcohol copolymer with a C18 alkyl group attached to the hydroxyl group of the polymer, 2 to 10 µm in diameter.	Asahipak ODP-40 Asahipak ODP-50 Shodex ET-RP1
L68	Spherical, porous silica, 10 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not endcapped.	InertSustain Amide Inertsil Amide
L69	Ethylvinylbenzene/divinylbenzene substrate agglomerated with quaternary amine functionalized 130 nm latex beads, about 6.5 µm in diameter.	
L70	Cellulose tris(phenyl carbamate) coated on 5 µm silica.	CHIRALCEL OC-H SUMICHIRAL OA-3300
L71	A rigid, spherical polymetacrylate, 4 to 6 µm in diameter.	RSpak DE-213, DE-413 RSpak DE-613
L72	(S)-phenylglycine and 3,5-dinitroaniline urea linkage covalently bonded to silica.	SUMICHIRAL OA-3300
L73	A rigid spherical polydivinylbenzene particle, 5 to 10 µm in diameter.	
L74	A strong anion-exchange resin consisting of a highly cross-linked core of 7 µm macroporous particles having a 100 Å average pore size and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene and an anion-exchange layer grafted to the surface, which is functionalized with alkyl quaternary ammonium ions.	
L75	A chiral-recognition protein, bovine serum albumine (BSA), chemically bonded to silica particles, about 7 µm in diameter, with a pore size of 300 Å.	
L76	Silica based weak cation-exchange material, 5 µm in diameter. Substrate is surface polymerized polybutadiene-maleic acid to provide carboxylic acid functionalities. Capacity not less than 29 µEq/column.	
L77	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 6 to 9 µm diameter. Substrate is surface grafted with carboxylic acid functionalized groups. Capacity not less than 500 µEq/column (4 mm x 25 cm)	
L78	A silane ligand that consists of both reversed phase (an alkyl chain longer than C8) and anion-exchange (primary, secondary, or tertiary amino groups) functional groups chemically bonded to porous or non-porous silica or ceramic micro-particles, 1.0 to 50 µm in diameter, or a monolithic rod.	
L79	A chiral-recognition protein, human serum albumin (HSA), chemically bonded to silica particles, about 5 µm in diameter.	CHIRALPAK HSA
L80	Cellulose tris(4-methylbenzoate)-coated, porous, spherical, silica particles, 5 to 20 µm in diameter.	CHIRALCEL OJ CHIRALCEL OJ-H
L81	A hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 9 µm porous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene with a latex coating composed of 70 nm diameter microbeads (6 % crosslinked) bonded with alkanol quaternary ammonium ions.	
L82	Polyamine chemically bonded to cross-linked polyvinyl alcohol polymer, 5 µm in diameter.	Asahipak NH2P-40 Asahipak NH2P-50 apHera NH2 Amino
L83	A hydroxide-selective, strong anion-exchange resin-quaternary amine bonded on latex particles attached to a core of 10.5 µm microporous particles of 10 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene.	
L84	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 5 µm in diameter. Substrate is surface grafted with carboxylic acid functionalized groups. Capacity not less than 8400 µ Eq/column (5 mm x 25 cm).	
L85	A silane ligand that consists of both reversed phase (an alkyl chain longer than C8) and weak cation-exchange (carboxyl groups) functional groups chemically bonded to porous or non-porous particles, 1.0 to 50 µm in diameter.	

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L86	A 5 µm fused core particle with a highly polar ligand possessing 5 hydroxyl groups tethered to the silica gel outer layer.	
L87	Dodecyl silane chemically bonded to porous silica particles, 1.5 to 10 µm in diameter.	
L88	Glycopeptide vancomycin linked through multiple covalent bonds to 100 Å spherical silica.	
L89	Packing having the capacity to separate compounds with a molecular weight range from 100 - 3000 (as determined by polyethylene oxide), applied to neutral and anionic water-soluble polymers. A polymethacrylate resin base, cross-linked with polyhydroxylated ether (surface contains some residual cationic functional groups).	
L90	Amylose tris-[(S)-alpha-methylbenzylcarbamate] coated on porous, spherical silica particles, 3 to 10 µm in diameter.	
L91	Strong anion-exchange resin consisting of monodisperse porous polystyrene/divinyl benzene beads coupled with quaternary amine. Bead size is 3 to 10 µm.	
L92	A strong anion-exchange resin consisting of highly cross-linked 5 to 9 µm macroporous particles having a 100-Å average pore size and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene and an anion-exchange layer grafted to the surface, which is functionalized with alkanol quaternary ammonium ions.	
L93	Cellulose tris(3,5-dimethylphenylcarbamate) reversed phase chiral stationary phase coated on 3 or 5 µm silica gel particles.	CHIRALCEL OD-3R CHIRALCEL OD-RH
L94	A strong anion-exchange resin consisting of a highly crosslinked 15 µm microporous particles functionalized with very low crosslinked latex (0.5 %) to provide alkanol quaternary ammonium ion exchange sites.	
L95	A highly polar alkyl ligand comprising five hydroxyl groups that are chemically bonded to totally porous or superficially porous silica or a monolithic silica rod.	
L96	Alkyl chain, reversed-phase bonded totally or superficially porous silica designed to retain hydrophilic and other polar compounds when using highly aqueous mobile phases, including 100 % aqueous, 1.5 µm to 10 µm.	InertSustain AQ-C18
L97	Weak cation-exchange resin consisting of a highly cross-linked core of 5.5 µm porous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene. Substrate is surface grafted with carboxylic acid functionalized groups. Capacity not less than 2400 µEq/column (4 mm x 25 cm).	
L98	Weak cation-exchange resin consisting of a highly cross-linked core of 8.0- µm microporous particles having an average pore size of 10 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene. Substrate is surface grafted with carboxylic acid functionalized groups. Capacity of NLT 46 µEq/column (4-mm x 5-cm).	
L99	Amylose tris-(3,5)-dimethylphenylcarbamate, immobilized on porous, spherical, silica particles, 3 to 5 µm in diameter.	CHIRALPAK IA CHIRALPAK IA-3
L100	A 55 % crosslinked, microporous, hydrophobic resin core (9 µm microporous particles having a pore size of 10 Å) that consists of a bilayer of anion and cation exchange latex. The first layer is fully sulfonated latex (140 nm) and the second layer is fully aminated latex (76 nm).	
L101	Cholesteryl groups chemically bonded to porous or non-porous silica or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod.	
L102	(Naproxen, [S,S] Whelk-O 1) - 1-(3,5-dinitrobenzamido)-1,2,3,4-tetrahydrophenanthrene covalently bonded to porous spherical silica particles, 5 to 10 µm in diameter.	
L103	A hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 7.5 µm porous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55% divinylbenzene electrostatically bonded with hyperbranched alkanol quaternary ammonium ions.	
L104	Triazole groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter.	
L105	A strong anion-exchange resin consisting of a highly cross-linked 9 µm supermacroporous (2000 Å) particles functionalized with very low cross-linked latex (0.2 %) to provide alkyl quaternary ammonium ion sites.	
L106	Weak cation-exchange resin consisting of ethylvinylbenzene, 55 % cross-linked with divinylbenzene copolymer, 5 to 8 µm diameter, macroporous particles having an average pore size of 100 Å. Substrate is surface grafted with carboxylic acid and phosphonic acid functional groups. Capacity not less than 2800 µEq/column (4 mm x 25 cm).	
L107	Cellulose tris(4-methylbenzoate)-coated porous spherical particles, 3 to 5 µm in diameter, for use with reversed phase mobile phases.	CHIRALCEL OJ-RH
L108	A chiral-recognition protein, cellobiohydrolase (CBH), chemically bonded to silica particles, about 5 µm in diameter.	CHIRALPAK CBH
L109	Spherical particles of porous graphitic carbon, 3 to 30 µm in diameter.	
L110	A strong anion-exchange resin consisting of a highly cross-linked 13 µm microporous (less than 10 Å) particles coated with very low cross-linked latex (0.5 %) to provide alkanol quaternary ammonium ion exchange sites.	
L111	Polyamine chemically bonded to porous spherical silica particles, 5 µm in diameter.	
L112	A hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 8.5 µm porous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55% divinylbenzene with a latex coating composed of 65 nm diameter microbeads (5 % cross-linked) bonded with alkanol quaternary ammonium ions.	
L113	A hydroxide-selective, strong anion-exchange resin consisting of a highly cross-linked core of 7.5 µm porous particles having a pore size of 2000 Å and consisting of ethylvinylbenzene cross-linked with 55 % divinylbenzene with a latex coating composed of 65 nm diameter microbeads (8 % cross-linked) bonded with alkanol quaternary ammonium ions.	