GC columns for USP compendial Methods

The official pharmaceutical analysis monographs in the United States Pharmacopeia (USP) detail the methods used by pharmaceutical manufacturers for quality control of bulk drug substances and dosage form preparations. Each method specifies a particular high performance liquid chromatography (HPLC) or gas chromatography (GC) column or column type and the conditions under which the analysis is performed. This poster lists the USP Codes for the GC phases and supports used in these methods, descriptions, and information about our products that conform to these descriptions.

Phases

USP Code[1]	Description[1]	Available Columns[2, 3]	
		Capillary Columns	Packed Column Phases
G1	Dimethylpolysiloxane oil	Equity-1 SLB®-1ms SPB®-1	OV®-101 SE-30 SP®-2100
G2	Dimethylpolysiloxane gum	Equity-1 SLB®-1ms SPB®-1	OV®-1 SE-30 SP®-2100
G3	50% Phenyl-50% methylpolysiloxane	SPB®-50	OV®-17 SP®-2250 SP®-1500
G4	Diethylene glycol succinate polyester		Diethylene glycol succinate (DEGS)
G5	Not less than 70% of 3-cyanopropylpolysiloxane.	SP®-2340 SP®-2560	SP®-2340
G6	Triluoropropylmethylpolysiloxane		SP®-2401
G7	50% 3-Cyanopropyl-50% phenylmethylsilicone	SPB®-225	Silar 5 CP SP®-2250 SP®-2300
G8	80% Bis(3-cyanopropyl)-20% 3-cyanopropylphenylpolysiloxane (percentages refer to molar substitution)	SP®-2330	SP®-2330
G9	Methylvinylpolysiloxane	Equity-1 SLB®-1ms SPB®-1	OV®-1 UCW 98
G14	Polyethylene glycol (av. mol. wt. of 950 to 1,050)		Carbowax 1000
G15	Polyethylene glycol (av. mol. wt. of 3,000 to 3,700)		Carbowax 4000
G16	Polyethylene glycol compound (av. mol. wt. about 15,000). A high molecular weight compound of polyethylene glycol with a diepoxide linker	Omegawax SUPELCOWAX 10	Carbowax 20M
G19	25% Phenyl-25% cyanopropyl-50% methylsilicone	SPB®-225	OV®-225
G20	Polyethylene glycol (av. mol. wt. of 380 to 420)		Carbowax 400
G21	Neopentyl glycol succinate		Neopentyl glycol succinate
G23	Polyethylene glycol adipate		Ethylene glycol adipate (EGA)
G24	Diisodecyl phthalate		Diisodecyl phthalate
G25	Polyethylene glycol compound TPA. A high molecular weight compound of a polyethylene glycol and a diepoxide that is esterified with terephthalic acid	Nukol SPB®-1000	Carbowax 20M-TPA SP®-1000
G27	5% Phenyl-95% methylpolysiloxane	Equity-5 SLB®-5ms SPB®-5	SE-52
G28	25% Phenyl-75% methylpolysiloxane	SPB®-35	DC-550
G30	Tetraethylene glycol dimethyl ether		Tetraethylene glycol dimethyl ether
G31	Nonylphenoxypoly(ethyleneoxy)ethanol (av. ethyleneoxy chain length is 30); Nonoxynol 30		IGEPAL® CO-880 (Nonoxynol)
G32	20% Phenylmethyl-80% dimethylpolysiloxane	SPB®-20	OV®-7
G34	Diethylene glycol succinate polyester stabilized with phosphoric acid.		DEGS-PS
G35	A high molecular weight compound of a polyethylene glycol and a diepoxide that is esterified with nitroterephthalic acid.	Nukol SPB®-1000	Carbowax 20M-TPA Free Fatty Acid Phase (FFAP) SP®-1000
G36	1% Vinyl-5% phenylmethylpolysiloxane	Equity-5 SLB®-5ms SPB®-5	SE-54
G38	Phase G1 containing a small percentage of a tailing inhibitor.		SP®-2100 + 0.1% Carbowax 1500 SP®-2100 + 0.2% Carbowax 1500
G40	Ethylene glycol adipate (EGA)		Ethylene glycol adipate (EGA)
G42	35% Phenyl-65% dimethylpolysiloxane (percentages refer to molar substitution)	SPB®-35	OV®-11
G43	6% Cyanopropylphenyl-94% dimethylpolysiloxane (percentages refer to molar substitution)	OVI-G43 SPB®-624	
G44	2% Low molecular weight petrolatum hydrocarbon grease		Apiezon® L
G45	Divinylbenzene-ethylene glycol-dimethylacrylate		Porapak™ N
G46	14% Cyanopropylphenyl-86% methylpolysiloxane	Equity-1701	OV®-1701
G48	Highly polar, partially cross-linked cyanopolysiloxane	SP®-2380	SP®-2380
G52	Polyethylene glycol, cross-linked (av. mol weight of not more than 20,000)	Supelcowax 10	
G##	(Tetrafluoroethane, Bentone 34/SP®-1200) - Aluminosilicate montmorrillonite that has been treated with dimethyloctadecylammonium salts plus a low polarity ester phase	Bentone 34	
G##	(Tetrafluoroethane, Krytox) A perfluorinated polyether		Krytox, Fluorocol
G##	(Octreotide Acetate, PTA-5) - Base-deactivated 5% phenyl-95% methylpolysiloxane.	PTA-5	

Supports[4]

These supports are available primarily upon request please inquire through the **Custom GC** or your account manager.

USP Code[1]	Description[1]	Available Packed Column Supports[2, 3]
S1A	Siliceous earth for gas chromatography has been lux-calcined by mixing diatomite with Na_2CO_3 lux and calcining above 900 °C. The siliceous earth is acid-washed, then water-washed until neutral, but not base-washed. The siliceous earth may be silanized by treating with an agent such as dimethyldichlorosilane to mask surface silanol groups.[5]	Chromosorb® W AW Chromosorb® W HP SUPELCOPORT
S1AB	The siliceous earth as described above is both acid- and base-washed.[5]	SUPELCOPORT BW
S1C	A support prepared from crushed irebrick and calcined or burned with a clay binder above 900 °C with subsequent acid-wash. It may be silanized.	Chromosorb® P AW Chromosorb® P AW-DMCS
S1D	A support prepared from crushed irebrick and calcined or burned with a clay binder above 900 °C, not acid washed. It may be silanized.	Chromosorb® P NAW
S1NS	The siliceous earth is untreated.	Chromosorb® W NAW
S2	Styrene-divinylbenzene copolymer having a nominal surface area of less than 50 m^2 per g and an average pore diameter of 0.3 to 0.4 µm.	Chromosorb® 101
S3	Copolymer of ethylvinylbenzene and divinylbenzene having a nominal surface area of 500 to 600 m^2 per g and an average pore diameter of 0.0075 µm.	Porapak™ Q
S4	Styrene-divinylbenzene copolymer with aromatic –O and –N groups, having a nominal surface area of 400 to 600 m^2 per g and an average pore diameter of 0.0076 µm.	Porapak™ R
S5	40- to 60-mesh, high-molecular weight tetraluorethylene polymer.	Chromosorb® T
S6	Styrene-divinylbenzene copolymer having a nominal surface area of 250 to 350 m^2 per g and an average pore diameter of 0.0091 µm.	Chromosorb® 102 Porapak™ P
S7	Graphitized carbon having a nominal surface area of 12 m^2 per g.	Carbopack™ C
S8	Copolymer of 4-vinyl-pyridine and styrene-divinylbenzene.	Porapak™ S
S9	A porous polymer based on 2,6-diphenyl-p-phenylene oxide.	Tenax TA
S11	Graphitized carbon having a nominal surface area of 100 m^2 per g modiied with small amounts of petrolatum and polyethylene glycol compound.	3% SP®-1500 on 80/120 Carbopack™ B
S12	Graphitized carbon having a nominal surface area of 100 m^2 per g.	Carbopack™ B
S13	Synthetic sodium crystalline aluminosilicate form of the X type with pore diameters of approximately 10A	13X Molecular sieve 60/80 mesh
S ##	(Cyclosporine modified capsules, 4% Carbowax 20 M and 0.8% KOH on Carbograph 1) - 4% polyethylene glycol compound (av. mol. weight about 15,000). A high molecular weight compound of polyethylene glycol with a diepoxide linker (G16) and 0.8% of KOH on graphitized carbon having anominal surface area of 100 m^2 per g modified with small amounts of petrolatun and polyethylene glycol compound (S11).	4% Carbowax 20M and 0.8% KOH on Carbopack™ B
Nitrogen purity	A molecular sieve prepared from a synthetic alkali-metal aluminosilicate capable of absorbing molecules having diameters of up to 0.5 nm, which permit complete separation of oxygen from nitrogen.	Molecular Sieve 5A

Footnotes:

[1]United States Pharmacopeia 40, National Formulary 35, (November 1, 2016). Request from United States Pharmacopeial Convention, Inc., 12601 Twinbrook Parkway, Rockville, MD USA 20852 (tel. 800-227-8772) online, **https://www.usp.org/resources/chromatographic-columns** Contact list: **https://www.usp.org/contact-us**.

[2]Indicates availability of material(s) matching the description. We are not necessarily the manufacturer of the material.

[3]Purple text indicates our recommendation(s).

[4]Unless otherwise speciied, mesh sizes of 80 to 100 or, alternatively, 100 to 120 are intended.

[5]Unless otherwise speciied in the individual monograph, silanized support is intended.

For dimensions of capillary or packed GC columns not listed on the site, please contact your account manager or request a custom order at **SigmaAldrich.com/CustomGC**

USP Chromatographic Database Landing Page

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