

GC COLUMNS METAL (MXT®) COLUMNS

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Top: Aaron Decker, Manufacturing Technician
Bottom: Bryan Wolcott, CFO and Tina Welch, HR Director



What is an MXT® column?

MXT® columns are made from stainless steel tubing that has had the internal surface treated with our exclusive Siltek® surface treatment. The Siltek® layer makes the surface as inert as deactivated fused silica. The unique Siltek® process enables us to offer MXT® columns in a wide range of internal diameters, including 0.18mm, 0.25mm, 0.32mm, and 0.53mm. Because the Siltek® layer permeates the stainless steel surface, rather than simply coating it, the layer is exceptionally flexible, so the tubing can be coiled to very small diameters. The standard coil diameter for MXT® columns is 4.5 inches. The minimum coil diameter for 0.53mm ID columns is 2.5 inches, and the minimum coil diameter for 0.25mm ID columns is 1.5 inches.



The unique properties of the Siltek® treated surface enable us to treat the tubing with a wide variety of polymer phases. The many choices of MXT® columns include:

- MXT®-1
- MXT®-5
- MXT®-1HT Sim Dist
- MXT®-2887
- MXT®-20
- MXT®-35
- MXT®-50
- MXT®-65
- MXT®-65TG
- MXT®-1301
- MXT®-1701
- MXT®-200
- MXT®-WAX
- MXT®-502.2
- MXT®-Volatiles
- MXT®-624
- MXT®-Biodiesel TG
- Guard tubing

Compare MXT® columns and fused silica columns:

- Metal tubing allows MXT® columns to be used to higher temperatures (430°C) than fused silica columns (standard rating is 360°C). This is because the polyimide resin that encases the fused silica becomes brittle over time at high temperatures. MXT® columns do not become brittle over time.
- Inertness of MXT® columns and fused silica columns is similar, due to the unique properties of the Siltek® surface treatment in MXT® columns.
- Coating efficiency (plates/meter) of MXT® columns is equivalent to that of fused silica.
- MXT® columns will not break under stress, and they can be coiled to small diameters.

MXT®-Biodiesel TG columns are undamaged by high thermal cycles compared to high-temperature fused silica columns which break down under the same conditions.



MXT®-Biodiesel TG columns are undamaged by high thermal cycles.



HT fused silica columns, labeled as stable to 430°C, show pitting and breakdown.

100 temperature cycles to 430°C totaling 500 minutes at maximum temperature.

MXT® columns are your best choice for:

- Situations in which the potential for column breakage is high:
 - field instruments
 - process GC
 - GCs with small ovens, such as portable instruments, requiring tightly coiled columns.
- High temperature chromatography. Siltek® deactivated stainless steel tubing can withstand temperatures exceeding 430°C; the only limitation to oven temperature is the polymer itself.

Custom MXT® columns

We are able to supply 0.18, 0.25, 0.28, 0.32, and 0.53mm ID columns with the phases listed above in many different configurations. If you do not see the column you need listed in the following pages, call us or your Restek representative, and we will be happy to help.

Intermediate-Polarity Deactivated MXT® Guard/Retention Gap Columns/Transfer Lines (passivated stainless steel)

- Useful for a wide range of applications.
- Use with most common solvents.
- Maximum temperature: 430°C

Nominal ID	Nominal OD	5-Meter	5-Meter/6-pk.	10-Meter
0.28mm	0.53 ± 0.025mm	70044	70044-600	70046
0.53mm	0.74 ± 0.025mm	70045	70045-600	70047

Hydroguard™ Treated MXT® Guard/Retention Gap Columns/Transfer Lines (passivated stainless steel)

- Extend analytical column lifetime by preventing degradation by harsh “steam-cleaning” water injections.
- Maximum temperature: 430°C.

When transfer lines from purge & trap systems, air monitoring equipment, or other instruments carry condensed water vapor, deactivated column tubing quickly becomes active because of the creation of free silanol groups. These silanol groups adsorb active oxygenated compounds such as alcohols and diols.

Restek chemists have addressed this concern and found a solution—the Hydroguard™ deactivation process. A unique deactivation chemistry creates a high-density surface that is not readily attacked by aggressive hydrolysis. The high-density surface coverage of the Hydroguard™ deactivation layer effectively prevents water vapor from reaching the fused silica surface beneath. Use Hydroguard™ tubing for connecting GCs to:

- Purge & trap systems.
- Headspace analyzers.
- Air analysis equipment and concentrator units.

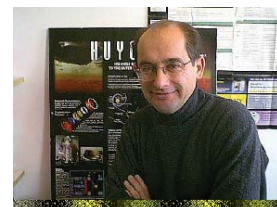
Nominal ID	Nominal OD	5-Meter	10-Meter	30-Meter*	60-Meter*†
0.28mm	0.53 ± 0.025mm	70080	70083	70086	70089
0.53mm	0.74 ± 0.025mm	70081	70084	70087	70090

*30- and 60-meter lengths are banded in 5-meter sections.

†Recommendation: Cut 60m guard columns into shorter lengths. Using full length may cause peak distortion.

a plus 1 story

“Since now almost 15 years, the Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA) of the University of Paris XII has been developing GC subsystems for on-board space probe GCMS experiments dedicated to the *in situ* analysis of extraterrestrial environments. Most of the capillary columns used in these subsystems were and still are provided by the Restek company.



One capillary column, MXT®-1701¹, was aboard the Huygens probe of the Cassini-Huygens mission which explored successfully in 2005 the atmosphere of Titan, the largest moon of Saturn. Four columns, MXT®-1, 20, 1701 and MXT®-UPL0T², are “en route” towards the comet Churyumov-Gerasimenko in the frame of the ESA Rosetta mission launched in 2004 to arrive by 2014. They will be used for the first time *in situ* analysis of a cometary nucleus. And finally, so far, 4 other PLOT (MXT® U) and WCOT^{3,4} (MXT®-1, 20 and CLP) columns have been selected and are currently being built in the GC of the Sample Analysis at Mars (SAM) Pyr/GCMS instrument, part of the payload of the NASA MSL 2009 Mars exploratory mission.

I would like to mention that all the columns selected for space mission are Silcosteel® treated metal capillary columns and they have all been submitted successfully to space qualification tests such as vibration, radiation and thermal cycles⁵, which demonstrated their robustness for space application.

Since the beginning, the Restek company has been more than a manufacturer providing LISA with columns. Indeed, it has been strongly collaborating and helping LISA to develop custom-made columns able to meet the requirements of such an unusual scientific goal for chromatographic columns. That is why LISA is very grateful to Restek for being this ideal partner without the help of which the study and development of chromatographic columns for space use could not have been possible.”

Robert STERNBERG

Responsible for the space GC team at LISA (Paris, France)

References

¹Sternberg, R., C. Szopa, D. Coscia, S. Zubrzycki, F. Raulin, C. Vidal-Madjar, H. Niemann and G. Israel *J. Chromatogr.*, 846, 307-315, (1999)

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³Cabane, M., P. Coll, C. Szopa, G. Israël, F. Raulin, R. Sternberg, P. Mahaffy, A. Person, C. Rodier, R. Navarro-Gonzalez, H. Niemann, D. Harpold and W. Brinckerhoff *Adv. Space Research*, 33, 2240-2245 (2004)

⁴Zampolli, M-G., D. Meunier, R. Sternberg, C. Szopa., F. Raulin, M. C. Pietrogrande, F. Dondi *Chirality* 18 (5):383-394 (2006)

⁵C. Szopa, U.J. Meierhenrich, D. Coscia, L. Janin, F. Goesmann, R. Sternberg, J.-F. Brun, G. Israel, M. Cabane, R. Roll, F. Raulin, W. Thiemann and C. Vidal-Madjar and H. Rosenbauer *J. Chromatogr. A*, 982 303-312 (2002)

Restek Tubing Scorer for MXT® Columns

- Makes perfect cuts every time.
- Easy to use.
- Leaves column entrance perfectly round.

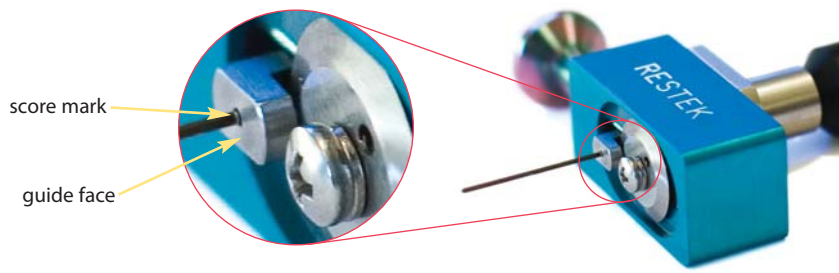


Metal MXT® columns are easy to cut. Scoring wafers can be used, but may leave the column end irregularly shaped. The Restek tubing scorer is designed to make a perfect cut every time, leaving the column entrance perfectly round.



Make a perfect column cut every time!

Enlarged view—score mark flush with guide face.

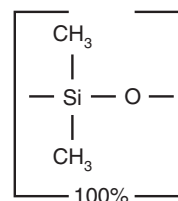


Description	qty.	cat.#	PRICE
Restek Tubing Scorer for MXT Columns (0.25-0.53mm ID & 0.5-0.8mm OD)	ea.	20523	
Replacement Scoring Wheel	ea.	20522	

MXT®-1 (nonpolar phase; Crossbond® 100% dimethyl polysiloxane)

- General purpose columns for solvent impurities, PCB congeners or (e.g.) Aroclor mixes, simulated distillation, drugs of abuse, gases, natural gas odorants, sulfur compounds, essential oils, hydrocarbons, semivolatiles, pesticides, and oxygenates.
- Temperature range: -60°C to 430°C.
- Equivalent to USP G1, G2, G38 phases.

MXT®-1 columns exhibit long lifetime and very low bleed at high operating temperatures. A proprietary synthesis process eliminates residual catalysts that could cause degradation and increase bleed.

MXT®-1 Structure**MXT®-1 Columns (Siltek® treated stainless steel)**

(Crossbond® 100% dimethyl polysiloxane)

ID	df (µm)	temp. limits	6-Meter	15-Meter	30-Meter	60-Meter	105-Meter
0.25mm	0.10	-60 to 330/430°C		70105	70116	70117	70114
	0.25	-60 to 430°C		70120	70123	70126	70129
	0.50	-60 to 400°C		70135	70138	70141	70144
	1.00	-60 to 340/360°C		70150	70153	70156	70159
0.28mm	0.10	-60 to 430°C	70102	70106	70109		
	0.25	-60 to 430°C		70121	70124	70127	
	0.50	-60 to 400°C		70136	70139	70142	
	1.00	-60 to 320/360°C		70151	70154	70157	
	3.00	-60 to 285/360°C		70181	70184	70187	
0.53mm	0.15	-60 to 430°C	70101*	70107			
	0.25	-60 to 430°C		70122	70125	70128	
	0.50	-60 to 400°C		70137	70140	70143	
	1.00	-60 to 320/360°C		70152	70155	70158	
	1.50	-60 to 310/360°C		70167	70170	70173	
	3.00	-60 to 285/360°C		70182	70185	70188	70189
	5.00	-60 to 270/360°C		70177	70179	70183	
	7.00	-60 to 250/360°C		70191	70192	70193	

ID	df (µm)	temp. limits	10-Meter	20-Meter	40-Meter
0.18mm	0.20	-60 to 330/430°C	71811	71812	71813
	0.40	-60 to 320/400°C	71814	71815	71816

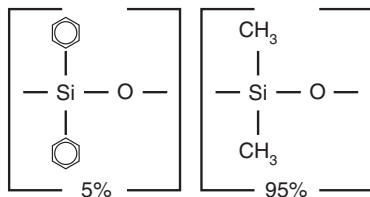
Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

*For simulated distillation.

similar phases

DB-1, DB-1MS, HP-1, HP-1MS, Ultra-1, SPB-1, Equity-1, MDN-1, CP-Sil 5 CB, VF-1ms

MXT®-5 Structure

**MXT®-5** (low polarity phase; Crossbond® 5% diphenyl/95% dimethyl polysiloxane)

- General purpose columns for drugs, solvent impurities, pesticides, hydrocarbons, PCB congeners or (e.g.) Aroclor mixes, essential oils, and semivolatiles.
- Temperature range: -60°C to 430°C.
- Equivalent to USP G27, G36 phases.

The 5% diphenyl/95% dimethyl polysiloxane stationary phase is the most popular GC stationary phase and is used in a wide variety of applications. All residual catalysts and low molecular weight fragments are removed from the MXT®-5 polymer, providing a tight monomodal distribution and extremely low bleed.

MXT®-5 Columns (Siltek® treated stainless steel)

(Crossbond® 5% diphenyl/95% dimethyl polysiloxane)

ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.10	-60 to 430°C	70205	70208	70211
	0.25	-60 to 430°C	70220	70223	70226
	0.50	-60 to 400°C	70235	70238	70241
	1.00	-60 to 340°C	70250	70253	70256
0.28mm	0.25	-60 to 430°C	70221	70224	70227
	0.50	-60 to 400°C	70236	70239	70242
	1.00	-60 to 325/360°C	70251	70254	70257
	3.00	-60 to 290/360°C	70281	70284	70287
0.53mm	0.25	-60 to 430°C	70222	70225	70228
	0.50	-60 to 400°C	70237	70240	70243
	1.00	-60 to 325/360°C	70252	70255	70258
	1.50	-60 to 300/360°C	70267	70270	70273
	3.00	-60 to 290/360°C	70282	70285	70288
5.00	-60 to 270/360°C	70277	70279	70283	

ID	df (µm)	temp. limits	10-Meter	20-Meter	40-Meter
0.18mm	0.20	-60 to 325/430°C	71821	71822	71823
	0.40	-60 to 325/400°C	71824	71825	71826

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

MXT®-2887 (nonpolar phase; Crossbond® 100% dimethyl polysiloxane)

- Application-specific columns for simulated distillation.
- Stable to 400°C.

MXT®-2887 columns' stationary phase, column dimensions, and film thickness have been optimized to exceed the resolution and skewing factor requirements currently specified in ASTM method D2887. Each column is individually tested to guarantee a stable baseline with low bleed and reproducible retention times. The Crossbond® methyl silicone stationary phase has increased stability compared to packed columns, ensuring stable baselines and shorter conditioning times. Manufactured from Siltek®-treated stainless steel tubing, MXT® columns are the most durable high temperature GC columns available.

MXT®-2887 Column (Siltek® treated stainless steel)

(Crossbond® 100% dimethyl polysiloxane—for simulated distillation)

ID	df (µm)	temp. limits	10-Meter
0.53mm	2.65	-60 to 400°C	70199

similar phases

DB-5, HP-5, HP-5MS, Ultra-2, SPB-5, Equity-5, MDN-5, CP-Sil 8 CB

Note: DB-5MS is a silarylene based polymer similar to Rxi®-5Sil MS.

similar phases

DB-2887, Petrocol EX2887, CP-HT-Simdist CB

MXT®-Biodiesel TG

- Fast analysis times and sharp mono-, di-, and triglyceride peaks.
- Stable at 430°C for reliable, consistent performance.
- Integra-Gap™ built-in retention gap on 0.53mm ID column eliminates column coupling completely.

MXT®-Biodiesel TG Columns (Siltek® treated stainless steel)

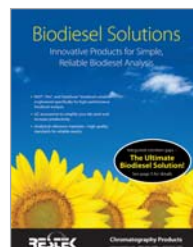
Description	temp. limits	cat.#	price
14m, 0.53mm ID, 0.16 w/2m Integra-Gap*	-60 to 380/430°C	70289	
10m, 0.32mm ID, 0.10	-60 to 380/430°C	70292	
10m, 0.32mm ID, 0.10 w/2m x 0.53mm Retention Gap**	-60 to 380/430°C	70290	
15m, 0.32mm ID, 0.10	-60 to 380/430°C	70293	
15m, 0.32mm ID, 0.10 w/2m x 0.53mm Retention Gap**	-60 to 380/430°C	70291	
2m x 0.53mm MXT Biodiesel TG Retention Gap		70294	

*Total column length=16 meters.

**Connected with low-dead-volume MXT connector.



MXT®-Biodiesel TG column now available in more dimensions.



free literature

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MXT®-1HT Sim Dist/MXT®-1 Sim Dist/MXT®-500 Sim Dist (nonpolar phases)

- Application-specific columns in unbreakable Siltek® treated stainless steel tubing meet all resolution criteria for high temperature simulated distillation (e.g., ASTM Method D2887 Extended).
- MXT®-1HT Sim Dist and MXT®-1 Sim Dist phases offer true methyl silicone polarity; MXT®-500 Sim Dist phase is a carborane siloxane polymer.
- Stable to 430°C.

Manufactured from Siltek® treated stainless steel tubing, MXT® columns are the most durable high temperature GC columns available. As outlined in ASTM Method D6352, high temperature simulated distillation requires a column that can withstand temperatures to 430°C. MXT®-1HT Sim Dist and MXT®-500 Sim Dist columns exhibit excellent peak shape and low bleed, even at 430°C! The unique MXT®-1HT Sim Dist methyl silicone polymer gives the correct retention time/boiling point curve. The MXT®-500 Sim Dist carborane siloxane polymer offers a slight shift in the calculated boiling range distribution for petroleum samples containing aromatic hydrocarbons.

MXT®-1HT Sim Dist Column (Siltek® treated stainless steel)

ID	df (µm)	temp. limits	5-Meter
0.53mm	0.10	-60 to 430°C	70100
	0.20	-60 to 400/430°C	70103



MXT®-1HT Sim Dist column now available in 0.20µm film thickness.

MXT®-1 Sim Dist Column (Siltek® treated stainless steel)

ID	df (µm)	temp. limits	6-Meter
0.53mm	0.15	-60 to 430°C	70101

MXT®-500 Sim Dist Column (Siltek® treated stainless steel)

ID	df (µm)	temp. limits	6-Meter
0.53mm	0.15	-60 to 430°C	70104

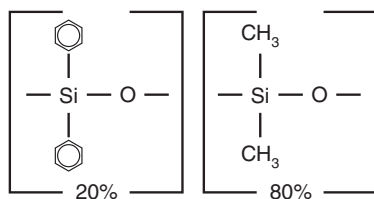
similar phases

DB-1HT, CP-HT-Simdist CB

Polywax® Calibration Materials

Description	qty.	cat.#	price
Polywax 655 calibration material	1g	36225	
Polywax 1000 calibration material	1g	36227	

MXT®-20 Structure



MXT®-20 (low to midpolarity phase; Crossbond® 20% diphenyl/80% dimethyl polysiloxane)

- General purpose columns for volatile compounds, flavor compounds, and alcoholic beverages.
- Temperature range: -20°C to 340°C.
- Equivalent to USP G28, G32 phases.

MXT®-20 polymer is synthesized to exacting standards. All residual catalysts and low molecular weight fragments are removed from the polymer, providing a tight monomodal distribution and extremely low bleed.

MXT®-20 Columns (Siltek® treated stainless steel)

(Crossbond® 20% diphenyl/80% dimethyl polysiloxane)

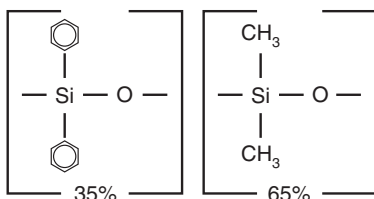
ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.25	-20 to 320/340°C	70320	70323	70326
	1.00	-20 to 300/340°C	70350	70353	70356
0.28mm	0.25	-20 to 310/340°C	70321	70324	70327
	1.00	-20 to 295/340°C	70351	70354	70357
	3.00	-20 to 260/340°C	70381	70384	70387
0.53mm	0.25	-20 to 310/340°C	70322	70325	70328
	1.00	-20 to 295/340°C	70352	70355	70358
	3.00	-20 to 260/340°C	70382	70385	70388

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

similar phases

SPB-20, VOCOL

MXT®-35 Structure



MXT®-35 (midpolarity phase; Crossbond® 35% diphenyl/65% dimethyl polysiloxane)

- General purpose columns for organochlorine pesticides, PCB congeners or (e.g.) Aroclor mixes, herbicides, pharmaceuticals, sterols, rosin acids, and phthalate esters.
- Temperature range: 0°C to 340°C.
- Equivalent to USP G42 phase.

MXT®-35 Columns (Siltek® treated stainless steel)

(Crossbond® 35% diphenyl/65% dimethyl polysiloxane)

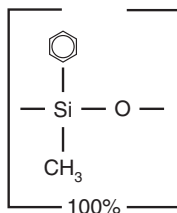
ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.50	0 to 310/340°C	70435	70438	
	1.00	0 to 300/340°C	70450	70453	
0.53mm	1.00	0 to 260/340°C	70452	70455	70458
	1.50	0 to 250/340°C	70467	70470	70473
	3.00	0 to 240/340°C	70482	70485	70488

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

similar phases

DB-35, HP-35, SPB-35, SPB-608

MXT®-50 Structure



MXT®-50 (midpolarity phase; Crossbond® 100% methylphenyl polysiloxane)

- General purpose columns for pesticides, herbicides, rosin acids, phthalate esters, triglycerides, and sterols.
- Temperature range: 0°C to 300°C.
- Equivalent to USP G3 phase.

MXT®-50 Columns (Siltek® treated stainless steel)

(Crossbond® 100% methylphenyl polysiloxane)

ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.53mm	0.83	0 to 270/300°C		70569	
	1.00	0 to 260/280°C	70552	70555	70558
	1.50	0 to 250/280°C	70567	70570	70573

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

similar phases

HP-17, SPB-50, SP-2250

MXT®-65 (mid to high polarity phase; Crossbond® 65% diphenyl/35% dimethyl polysiloxane)

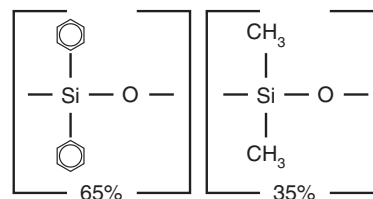
- General purpose columns for phenols and fatty acids.
- Temperature range: 50°C to 300°C.
- Equivalent to USP G17 phase.

MXT®-65 Columns (Siltek® treated stainless steel)

(Crossbond® 65% diphenyl/35% dimethyl polysiloxane)

ID	df (µm)	temp. limits	15-Meter	30-Meter
0.25mm	0.25	50 to 300°C	77020	77023
	0.50	50 to 300°C	77035	77038
	1.00	50 to 280/300°C	77050	77053

MXT®-65/MXT®-65TG Structure



similar phases

TAP-CB, 400-65HT, 007-65HT

MXT®-65TG (high polarity phase; Crossbond® 65% diphenyl/35% dimethyl polysiloxane)

- Application-specific columns, specially tested for triglycerides.
- Stable to 370°C.

The MXT®-65TG phase resolves triglycerides by degree of unsaturation as well as by carbon number. Because of the chemistry required to achieve 370°C thermal stability, an MXT®-65TG column should not be used for analyses of compounds that contain active oxygenated groups.

MXT®-65TG Columns (Siltek® treated stainless steel)

(Crossbond® 65% diphenyl/35% dimethyl polysiloxane)

ID	df (µm)	temp. limits	15-Meter	30-Meter
0.25mm	0.10	20 to 370°C	77005	77008
0.53mm	0.10	20 to 370°C	77007	77010

MXT®-1301 (low to midpolarity phase; Crossbond® 6% cyanopropylphenyl/94% dimethyl polysiloxane)

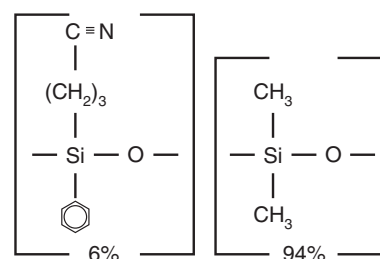
- General purpose columns for residual solvents, alcohols, oxygenates, and volatile organic compounds.
- Temperature range: -20°C to 280°C.
- Equivalent to USP G43 phase.

MXT®-1301 Columns (Siltek® treated stainless steel)

(Crossbond® 6% cyanopropylphenyl/94% dimethyl polysiloxane)

ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.25	-20 to 280°C	76020	76023	76026
	1.00	-20 to 260/280°C	76050	76053	76056
	0.28mm	0.25	-20 to 280°C	76021	76024
0.28mm	1.00	-20 to 260/280°C	76051	76054	76057
	1.50	-20 to 250/280°C	76066	76069	76072
	0.53mm	0.25	-20 to 280°C	76022	76025
1.00		-20 to 260/280°C	76052	76055	76058
1.50		-20 to 250/280°C	76067	76070	76073
	3.00	-20 to 240/280°C	76082	76085	76088

MXT®-1301 Structure

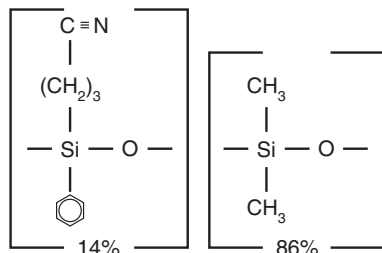


similar phases

DB-1301, DB-624, HP-1301, SPB-1301, SPB-624

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

MXT®-1701 Structure



similar phases

DB-1701, HP-1701, SPB-1701

MXT®-1701 (midpolarity phase; Crossbond® 14% cyanopropylphenyl/86% dimethyl polysiloxane)

- General purpose columns for alcohols, oxygenates, PCB congeners or (e.g.) Aroclor mixes, and pesticides.
- Temperature range: -20°C to 280°C.
- Equivalent to USP G46 phase.

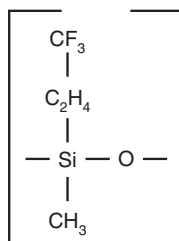
MXT®-1701 Columns (Siltek® treated stainless steel)

(Crossbond® 14% cyanopropylphenyl/86% dimethyl polysiloxane)

ID	df (μm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.25	-20 to 280°C	72020	72023	72026
	1.00	-20 to 260°C	72050	72053	72056
	1.50	-20 to 250°C	72066	72069	72072
0.28mm	0.25	-20 to 280°C	72021	72024	72027
	1.00	-20 to 260°C	72051	72054	72057
	1.50	-20 to 250°C	72067	72070	72073
0.53mm	0.25	-20 to 280°C	72022	72025	72028
	0.50	-20 to 270/280°C	72037	72040	72043
	1.00	-20 to 260°C	72052	72055	72058
	1.50	-20 to 250°C	72067	72070	72073
	3.00	-20 to 240°C	72082	72085	72088

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

MXT®-200 Structure



similar phases

DB-200, DB-210

MXT®-200 (midpolarity phase; Crossbond® trifluoropropylmethyl polysiloxane)

- General purpose columns for solvents, Freon® fluorocarbons, alcohols, ketones, silanes, and glycols. Excellent confirmation column with an Rtx®-5 column, for phenols, nitrosamines, organochlorine pesticides, chlorinated hydrocarbons, and chlorophenoxy herbicides.
- Temperature range: -20°C to 400°C.
- Equivalent to USP G6 phase.

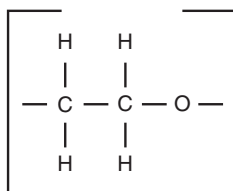
MXT®-200 Columns (Siltek® treated stainless steel)

(Crossbond® trifluoropropylmethyl polysiloxane)

ID	df (μm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.50	-20 to 400°C	75035	75038	
	1.00	-20 to 310/360°C	75050	75053	
0.53mm	1.00	-20 to 290/360°C	75052	75055	75058
	1.50	-20 to 280/360°C	75067	75070	75073
	3.00	-20 to 260/360°C	75082	75085	75088

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

MXT®-WAX Structure



similar phases

DB-WAX, DB-WAXetr, HP-Wax, HP-Innowax, Supelcowax 10, CP-Wax 52 CB

MXT®-WAX (polar phase; Crossbond® Carbowax® polyethylene glycol)

- General purpose columns for FAMES, flavor compounds, essential oils, amines, solvents, xylene isomers, and US EPA Method 603 (acrolein/acrylonitrile).
- Resistant to oxidative damage.
- Temperature range: 40°C to 260°C.
- Equivalent to USP G14, G15, G16, G20, and G39 phases.

MXT®-WAX Columns (Siltek® treated stainless steel)

(Crossbond® Carbowax® polyethylene glycol—provides oxidation resistance)

ID	df (μm)	temp. limits	15-Meter	30-Meter	60-Meter
0.25mm	0.10	40 to 260°C	70605	70608	70611
	0.25	40 to 260°C	70620	70623	70626
	0.50	40 to 260°C	70635	70638	70641
0.28mm	0.25	40 to 250/260°C	70621	70624	70627
	0.50	40 to 250/260°C	70636	70639	70642
	1.00	40 to 240/250°C	70651	70654	70657
0.53mm	0.25	40 to 250/260°C	70622	70625	70628
	0.50	40 to 250/260°C	70637	70640	70643
	1.00	40 to 240/250°C	70652	70655	70658
	1.50	40 to 230/250°C	70666	70669	70672
	2.00	40 to 220/250°C	70667	70670	

MXT®-502.2 (proprietary Crossbond® diphenyl/dimethyl polysiloxane phase)

- Application-specific columns with unique selectivity for volatile organic pollutants, cited in US EPA Method 502.2 and in many gasoline range organics (GRO) methods for monitoring underground storage tanks. Excellent separation of trihalomethanes; ideal polarity for light hydrocarbons and aromatics.
- Temperature range: -20°C to 320°C.

An MXT®-502.2 column will enable you to quantify all compounds listed in US EPA methods 502.2 or 524.2, whether you use a mass spectrometer or a PID in tandem with an ELCD. The diphenyl/dimethyl polysiloxane based MXT®-502.2 stationary phase provides low bleed and thermal stability to 320°C. A 105-meter column can separate the light gases specified in EPA methods without subambient cooling.

MXT®-502.2 Columns (Siltek® treated stainless steel)

(proprietary Crossbond® diphenyl/dimethyl polysiloxane phase)

ID	df (µm)	temp. limits	30-Meter	60-Meter	105-Meter
0.25mm	1.40	-20 to 270/320°C	70915	70916	
0.28mm	1.60	-20 to 250/320°C	70919	70920	70921
0.53mm	3.00	-20 to 270/320°C	70908	70909	70910

ID	df (µm)	temp. limits	10-Meter	20-Meter
0.18mm	1.00	-20 to 270/320°C	71891	71892

MXT®-Volatiles (proprietary Crossbond® diphenyl/dimethyl polysiloxane phase)

- Application-specific columns for volatile organic pollutants.
- Temperature range: -20°C to 320°C.

MXT®-Volatiles columns were the first columns designed specifically for analyses of the 34 volatile organic pollutants listed in US EPA methods 601, 602, and 624. With these columns, you can quantify all compounds listed in these methods, whether you use a mass spectrometer or a PID in tandem with an ELCD. The diphenyl/dimethyl polysiloxane based MXT®-Volatiles stationary phase provides low bleed and thermal stability to 320°C.

MXT®-Volatiles Columns (Siltek® treated stainless steel)

(proprietary Crossbond® diphenyl/dimethyl polysiloxane phase)

ID	df (µm)	temp. limits*	30-Meter	60-Meter	105-Meter
0.25mm	1.00	-20 to 280/320°C	70900	70903	
0.28mm	1.25	-20 to 280/320°C	70924	70926	70928
0.53mm	2.00	-20 to 280/320°C	70925	70927	70929
	3.00	-20 to 250/320°C	70922	70923	

*Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

MXT®-624 (low to midpolarity phase; Crossbond® 6% cyanopropylphenyl/94% dimethyl polysiloxane)

- Application-specific columns for volatile organic pollutants. Recommended in US EPA methods for volatile organic pollutants.
- Temperature range: -20°C to 280°C.
- Equivalent to USP G43 phase.

The unique polarity of “624” columns makes them ideal for analyses of volatile organic pollutants. Although the MXT®-502.2 column is recommended in many methods, MXT®-624 columns offer the best separation of the early-eluting gases.

MXT®-624 Columns (Siltek® treated stainless steel)

(Crossbond® 6% cyanopropylphenyl/94% dimethyl polysiloxane)

ID	df (µm)	temp. limits	30-Meter	60-Meter
0.25mm	1.40	-20 to 240/280°C	70968	70969
0.53mm	3.00	-20 to 240/280°C	70971	70973

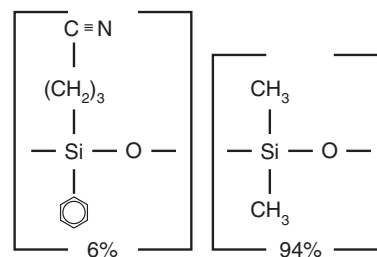
ID	df (µm)	temp. limits	10-Meter	20-Meter
0.18mm	1.00	-20 to 240/280°C	71893	71894

similar phase

DB-502.2

similar phase

VOCOL

MXT®-624 Structure

similar phases

DB-624, HP-624