

# GC COLUMNS METAL (MXT®) CAPILLARY COLUMNS

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**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 0.18 mm, 0.25 mm, 0.32 mm, and 0.53 mm. 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 0.53 mm ID columns is 2.5 inches, and the minimum coil diameter for 0.25 mm 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®-20
- MXT®-35
- MXT®-50
- MXT®-65
- MXT®-1301
- MXT®-1701
- MXT®-200
- MXT®-WAX
- MXT®-65TG
- MXT®-Biodiesel TG
- MXT®-2887
- MXT®-1HT SimDist
- MXT®-1 SimDist
- MXT®-500 SimDist
- MXT®-502.2
- MXT®-Volatiles
- MXT®-624
- 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.
- Inertness of MXT® columns and fused silica columns is similar, due to the unique properties of the Siltek® surface treatment in MXT® columns.
- Metal columns can be coiled under 4.5 inches without breaking, ideal for small instruments.
- Coating efficiency (plates/meter) of MXT® columns is similar 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 0.53 mm 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.



also  
**available**

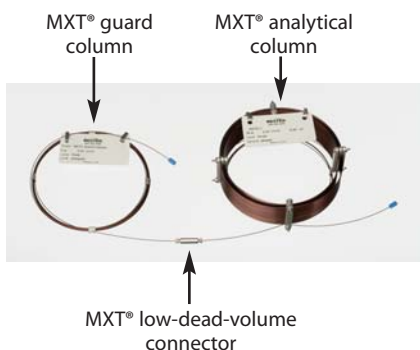
**Metal PLOT  
columns!**

See pages 108-110.

MXT® guard columns are tested for inertness and bleed.



Connect MXT® columns using an MXT® Low-Dead-Volume Connector!



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

- Useful for a wide range of applications.
- Compatible with most common solvents.
- Maximum temperature: 350 °C

Nominal ID	Nominal OD	5-Meter	5-Meter/6-pk.	10-Meter
0.28mm	0.56 ± 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:

- Headspace analyzers.
- Air analysis equipment and concentrator units.

Nominal ID	Nominal OD	5-Meter	10-Meter	30-Meter*	60-Meter*†
0.28mm	0.56 ± 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. Diameters greater than 0.10mm are tested with the Grob test mix to ensure high inertness.

also available

Column connector kits & ferrules  
See page 292.

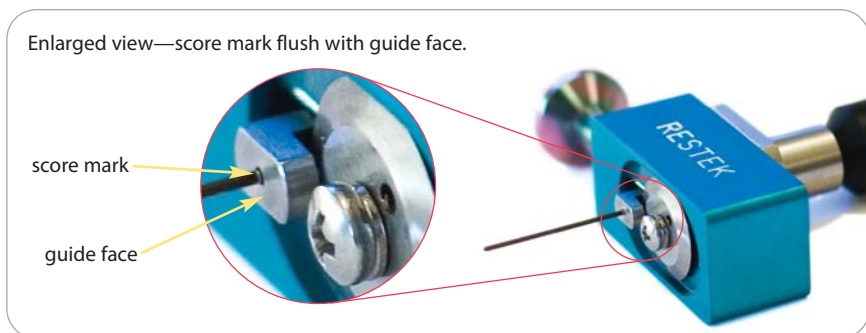
**Restek Tubing Scorer for MXT® Columns**

- Makes a perfect cut 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!



Description	qty.	cat.#
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 Columns (Siltek® treated stainless steel)**

(nonpolar phase; Crossbond® 100% dimethyl polysiloxane)

- General purpose columns for solvent impurities, PCB congeners (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.

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

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

\*For simulated distillation.

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

**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.

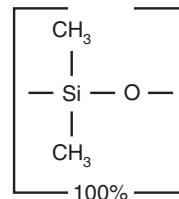
One capillary column, MXT-1701<sup>1</sup>, was aboard the Huygens probe of the Cassini-Huygens mission which explored successfully in 2005 the atmosphere of Titan, the largest moon of Saturn. Four columns, MXT-1, 20, 1701 and MXT-UPL0T<sup>2</sup>, are “en route” towards the comet Churyumov-Gerasimenko 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<sup>3</sup> U) and WCOT<sup>3a</sup> (MXT<sup>3</sup>-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<sup>®</sup> treated metal capillary columns and they have all been submitted successfully to space qualification tests such as vibration, radiation and thermal cycles<sup>5</sup>, 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)

**MXT®-1 Structure****similar phases**

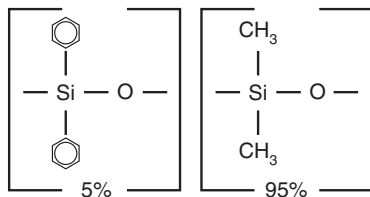
DB-1, DB-1MS, HP-1, HP-1MS, Ultra-1, SPB-1, Equity-1, MDN-1, CP-Sil 5 CB, VF-1ms

**References**

- <sup>1</sup>Sternberg, R., C. Szopa, D. Coscia, S. Zubrzycki, F. Raulin, C. Vidal-Madjar, H. Niemann and G. Israel *J. Chromatogr.*, 846, 307-315, (1999)
- <sup>2</sup>C. Szopa, R. Sternberg, F. Raulin and H. Rosenbauer *Planetary and Space Science*, 51 (13) 863-877 (2003)
- <sup>3</sup>Cabane, 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)
- <sup>4</sup>Zampolli, M-G., D. Meunier, R. Sternberg, C. Szopa., F. Raulin, M. C. Pietrogrande, F. Dondi *Chirality* 18 (5):383-394 (2006)
- <sup>5</sup>C. 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)

## General Purpose Columns

## MXT®-5 Structure



## 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.

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

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

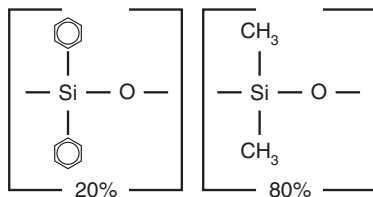
- General purpose columns for drugs, solvent impurities, pesticides, hydrocarbons, PCB congeners (e.g. Aroclor mixes), essential oils, and semivolatiles.
- Temperature range: -60 °C to 430 °C.
- Equivalent to USP G27, G36 phases.

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.

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

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

## MXT®-20 Structure



## similar phases

SPB-20, VOCOL

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

(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.

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

## Chromatogram Search Tool

Search by compound name, synonym, CAS # or keyword

[www.restek.com/chromatograms](http://www.restek.com/chromatograms)

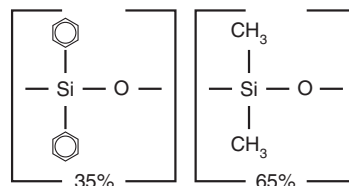


**MXT®-35 Columns (Siltek® treated stainless steel)**

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

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

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

**MXT®-35 Structure**

## similar phases

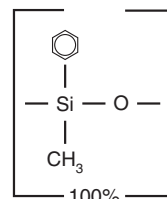
DB-35, HP-35, SPB-35, SPB-608

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

(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.

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

**MXT®-50 Structure**

## similar phases

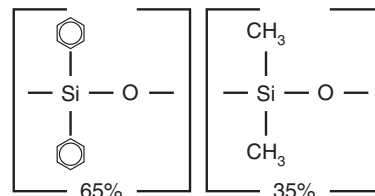
HP-17, SPB-50, SP-2250

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

(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.

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

**MXT®-65 Structure**

## similar phases

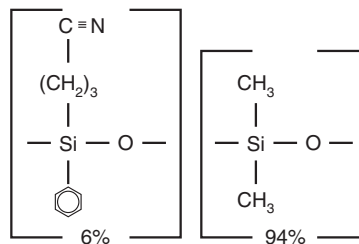
TAP-CB, 400-65HT, 007-65HT

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

(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.

ID	df	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.25µm	-20 to 280°C	76020	76023	76026
	1.00µm	-20 to 260/280°C	76050	76053	76056
0.28mm	0.25µm	-20 to 280°C	76021	76024	76027
	1.00µm	-20 to 260/280°C	76051	76054	76057
	1.50µm	-20 to 250/280°C	76066	76069	76072
0.53mm	0.25µm	-20 to 280°C	76022	76025	76028
	1.00µm	-20 to 260/280°C	76052	76055	76058
	1.50µm	-20 to 250/280°C	76067	76070	76073
	3.00µm	-20 to 240/280°C	76082	76085	76088

**MXT®-1301 Structure**

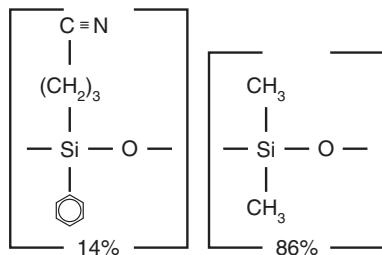
## similar phases

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.

## General Purpose Columns

## MXT®-1701 Structure



## similar phases

DB-1701, HP-1701, SPB-1701

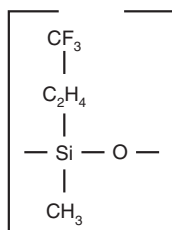
## MXT®-1701 Columns (Siltek® treated stainless steel)

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

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

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

## MXT®-200 Structure



## similar phases

DB-200, DB-210

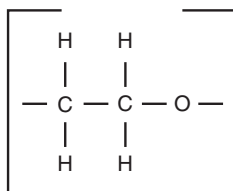
## MXT®-200 Columns (Siltek® treated stainless steel)

(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.

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

## MXT®-WAX Structure



## similar phases

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

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

(polar phase; Crossbond® Carbowax® polyethylene glycol—provides oxidation resistance)

- 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.

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

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

## Triglycerides in Foods Analysis

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

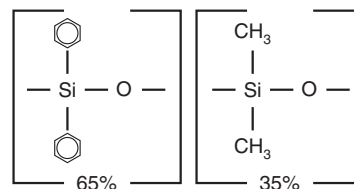
(high polarity phase; Crossbond® 65% diphenyl/35% dimethyl polysiloxane)

- 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.

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

### MXT®-65TG Structure



## Biodiesel Fuels Analysis

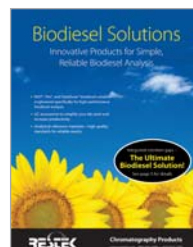
### MXT®-Biodiesel TG Columns (Siltek® treated stainless steel)

- 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 0.53 mm ID column eliminates column coupling completely.

Description	temp. limits	cat.#
14m, 0.53mm ID, 0.16µm with 2m Integra-Gap*	-60 to 380/430°C	70289
10m, 0.32mm ID, 0.10µm	-60 to 380/430°C	70292
10m, 0.32mm ID, 0.10µm with 2m x 0.53mm Retention Gap**	-60 to 380/430°C	70290
15m, 0.32mm ID, 0.10µm	-60 to 380/430°C	70293
15m, 0.32mm ID, 0.10µm with 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.



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## Simulated Distillation (C5-C44) Analysis

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

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

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

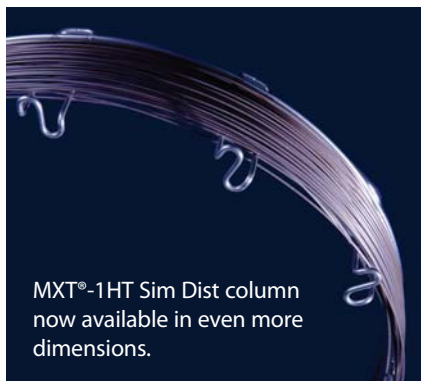
MXT®-2887 columns' stationary phase, column dimensions, and film thickness have been optimized to exceed the resolution and skewing factor requirements currently specified in ASTM method D2887. Each column is individually tested to guarantee a stable baseline with low bleed and reproducible retention 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.

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

similar phases

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





MXT®-1HT Sim Dist column now available in even more dimensions.

### similar phases

DB-1HT, CP-HT-Simdist CB

## Simulated Distillation (C44-C100) Analysis

### MXT®-1HT SimDist Column (Siltek® treated stainless steel)

(nonpolar phases)

- Stable up to 450 °C—lowest bleed for longest column lifetime.
- Reliably meet all ASTM D6352 and D7500 specifications.
- 100% dimethyl polysiloxane phase allows easy comparisons to historical data.

Accurate boiling point determination for medium and heavy fractions using GC simulated distillation requires columns and phase polymers that are robust enough to withstand high temperatures without significant degradation. Metal columns are a better alternative than fused silica, and the new MXT®-1HT SimDist columns are the lowest bleed, highest efficiency columns available, outperforming other metal columns for critical method parameters.

ID	df	temp. limits	5-Meter	10-Meter
0.53mm	0.10 $\mu$ m	-60 to 430/450°C	70112	
	0.20 $\mu$ m	-60 to 430/450°C	70115	
	0.21 $\mu$ m	-60 to 430/450°C		70118
	0.88 $\mu$ m	-60 to 400/430°C	70131	70134
	1.00 $\mu$ m	-60 to 380/400°C		70130
	1.20 $\mu$ m	-60 to 380/400°C		70119
	2.65 $\mu$ m	-60 to 360/400°C		70132
	5.00 $\mu$ m	-60 to 360/400°C		70133

### MXT®-1 SimDist/MXT®-500 SimDist

- 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 SimDist and MXT®-1 SimDist phases offer true methyl silicone polarity; MXT®-500 SimDist phase is a carborane siloxane polymer.
- Stable to 430 °C.

### MXT®-1 SimDist Column (Siltek® treated stainless steel)

(nonpolar phase)

ID	df	temp. limits	6-Meter
0.53mm	0.15 $\mu$ m	-60 to 430°C	70101

### MXT®-500 SimDist Column (Siltek® treated stainless steel)

(nonpolar phase)

ID	df	temp. limits	6-Meter
0.53mm	0.15 $\mu$ m	-60 to 430°C	70104

### Polywax® Calibration Materials

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

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## Volatile Organics Analysis

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

(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.

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

ID	df	temp. limits	10-Meter	20-Meter
0.18mm	1.00 $\mu$ m	-20 to 270/320°C	71891	71892

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

(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.

ID	df	temp. limits*	30-Meter	60-Meter	105-Meter
0.25mm	1.00 $\mu$ m	-20 to 280/320°C	70900	70903	
0.28mm	1.25 $\mu$ m	-20 to 280/320°C	70924	70926	70928
0.53mm	2.00 $\mu$ m	-20 to 280/320°C	70925	70927	70929
	3.00 $\mu$ m	-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 Columns (Siltek® treated stainless steel)

(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.

ID	df	temp. limits	30-Meter	60-Meter
0.25mm	1.40 $\mu$ m	-20 to 240/280°C	70968	70969
0.53mm	3.00 $\mu$ m	-20 to 240/280°C	70971	70973

ID	df	temp. limits	10-Meter	20-Meter
0.18mm	1.00 $\mu$ m	-20 to 240/280°C	71893	71894

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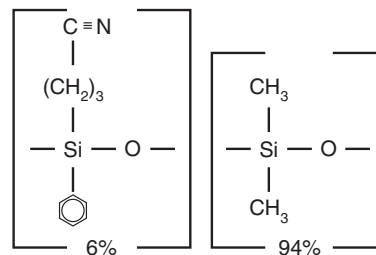
### similar phase

DB-502.2

### similar phase

VOCOL

### MXT®-624 Structure



### similar phases

DB-624, HP-624