



Rtx-502.2 / MXT-502.2

Restek's
MXT®
columns
rugged, flexible
fused-silica-
lined, stainless
steel

Applications: EPA
Method 502.2,
volatile organics

□ Rtx-502.2 / MXT-502.2

- Recommended for the analysis of Volatile Organic Compounds in EPA Methods.
- Sub-ambient temperature not required with IOSm column.
- Specified in many GRO methods for monitoring leaking underground storage tanks.
- Crossbond® for reduced bleed, increased column lifetime, and solvent rinsability.
- 270°C thermal stability.
- Similar to DB-502.2 columns.
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Several different polarity columns have been used for the analysis of EPA Method 502.2 and 524.2 compounds. Restek's Rtx-502.2 has a unique selectivity for the volatile organic pollutants and is cited in EPA Method 502.2. The Rtx-502.2 stationary phase is based on a diphenylidimethyl polysiloxane, which provides low bleed and thermal stability up to 270°C.

In the late 1980's, Restek pioneered the separation of volatile gases at ambient temperature in cooperation with work done at OI Corporation. By working together, we were able to optimize both the ideal polarity to achieve maximum resolution of most volatile compounds and the 105 meter length to separate the light gases specified in EPA methods without the need for sub-ambient cooling. It is possible to quantify all of the compounds listed in EPA Methods 502.2 or 524.2 using the Rtx-502.2 column, whether you're using a PID in tandem with an ELCD or a mass spectrometer. The Rtx-502.2 is also available in narrow bore columns for analysts wishing to use direct interface with GC/MS systems.

The Rtx-502.2 column is also specified in most Gasoline Range Organic methods for the analysis of leaking underground storage tanks. The polarity of the Rtx-502.2 column is ideal for the separation of light hydrocarbons and aromatics.

The synthesis procedures and crosslinking mechanisms for the Rtx-502.2 polymer were carefully investigated to produce the highest quality phenyl/methyl columns. All residual catalyst, which could cause degradation and increased bleed, is removed from the polymer. The polymer is then carefully fractionated to remove low molecular weight fragments, and providing a tight monomodal distribution, which results in extremely low bleed. The polymer is fully characterized to ensure long-term reproducibility. Characterization testing includes RI, FTIR, Kovats Indices, % crosslinking, efficiency, and a five-day thermal bake-out to ensure column longevity. New batches of polymers are used only when they meet Restek's stringent QA tests, and each lot is subsequently tracked in an extensive database for future

Rtx-502.2 (Fused Silica)

EPA Volatiles in Methods 502.2, 524.2.
Stable to 270C

ID	df(um)	temp. limits	30-Meter	60-Meter	105-Meter
0.25mm	1.40	-20 to 250/270°C	10915	10916	10917
0.32mm	1.80	-20 to 250/270°C	10919	10920	10921
0.53mm	3.00	-20 to 250/270°C	10908	10909	10910
ID	df (um)	temp. limits	20-Meter	40-Meter	
0.18mm	1.00	-20 to 250/270°C	40914	40915	

Rtx-502.2 (Fused Silica)

EPA Volatiles in Methods 502.2, 524.2.
Stable to 270C

ID	df(um)	temp. limits	30-Meter	60-Meter	105-Meter
0.28mm	1.60	-20 to 270°C	70919	70920	70921
0.53mm	3.00	-20 to 270°C	70908	70909	70910

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Rtx-624 / MXT-624

□ Rtx-624 / MXT-624

- 105-meter column meets new CLP SOW requirements for gas separation without sub-ambient cooling.
- Recommended for the analysis of volatile organic compounds in EPA Methods.
- Crossbonded for reduced bleed, increased column lifetime, and solvent rinsability.
- 280°C thermal stability.
- Similar to DB-624 and HP-624

Since the February 1994 revision of the CLP Statement of Work for Volatile Organic Analysis, the Rtx® 624/MXT-624 has become the column of choice for many labs. This revision to the CLP SOW requires that all of the gaseous compounds must be resolved greater than 90% from each other or sub-ambient oven conditions must be used. The 105-meter Rtx-624~MXT®-624 columns achieve baseline separation of the gases at a starting temperature of 35C. The Rtx-624/MXT®-624 columns can be used with either a GCIMS system or a PID in tandem with an ELCD.

The unique polarity of the Rtx-624/MX-624 columns make them an ideal choice for the analysis of volatile organic pollutants. Although the Rtx502.2 is recommended in many methods, the Rtx®-624 column offers the best separation of the early eluting gases.

The polymer synthesis routes used for the Rtx--624/MXT-624 are similar to those used for the Rtx-1701 polymer. Our silicone synthesis chemists chose polymerization reactions that did not cause carboxyl amide limitation of the critical cyano groups. The polymer backbone structure was modified in a way that achieved stable polymer formulations at high temperatures. The result from this new polymer formulation was low bleed, even with sensitive detectors such as ECDs, NPDs, and MSDs. Restek's 624 column has been found by many analysts to be the best cyanosilicone bonded stationary phase available, with no other column manufacturer having lower bleed, longer lifetime, or better inertness. The polymer is fully characterized to ensure long-term reproducibility and column-to-column consistency. Characterization testing includes RI, FTIR, Kovats Indices, % crosslinking, efficiency, and a five-day thermal bake-out to ensure column longevity. New batches of polymers are used only when they meet Restek's stringent QA tests, and each lot is subsequently tracked in an extensive data base for future reference.

Applications:
EPA Methods 502.2,
524, 624, 8240 and 8260

Rtx-624 (Fused Silica)

(6% cyanopropyl/94%phenylcyanopropylsiloxane.
Stable to 280C

ID	df(um)	temp. limits	30-Meter	60-Meter	75-Meter	105-Meter
0.25mm	1.40	-20 to 240°C	10968	10969		
0.32mm	1.80	-20 to 240°C	10970	10971		
0.53mm	3.00	-20 to 240°C	10971	10973	10974	10975
ID	df(um)	temp. limits	10-Meter	20-Meter	40-Meter	
0.18mm	1.00	-20 to 240°C		40924	40925	

MXT-624 (Fused Silica)

(6% cyanopropyl/94%phenylcyanopropylsiloxane.
Stable to 280C

ID	df(um)	temp. limits	30-Meter	60-Meter	75-Meter	105-Meter
0.53	3.00	-20 to 240°C	70971	70973	70974	70975

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Rtx-Volatiles / MXT-Volatiles

□ Rtx-Volatiles / MXT-Volatiles

- Used for the analysis of Volatile Organic Compounds in EPA Methods.
- Crossbond stationary phase results in reduced bleed, increased column lifetime, and solvent rinsability.
- 280°C thermal stability.
- Similar to VOCOL columns.

Several different polarity columns have been used for the analysis of volatile organic pollutants. Restek's Rtx-Volatiles was the first generation of columns specially designed for the analysis of the 34 volatile organic pollutants listed in EPA Methods 601, 602, and 624. The Rtx-Volatiles stationary phase is based on a diphenyl/di methyl polysiloxane, which provides low bleed and thermal stability up to 280°C.

Whether you're using a PID in tandem with an ELCD or a mass spectrometer, it is possible to quantify all of the compounds in EPA Methods 601, 602, and 624 using the Rtx®-Volatiles column. The Rtx®-Volatiles is also available in narrow bore columns for analysts wishing to use direct interface with GC/MS systems.

The MXT-Volatiles column is an unbreakable alternative to fused silica. These fused-silica lined stainless steel columns offer comparable efficiency and inertness to fused silica tubing with increased durability. MXT® columns are caged in 4" diameter coils or smaller, which are ideal for compact GCs with small ovens. MXT-Volatiles columns are also ideal for process or portable GCs where column integrity is of great importance or for any lab wanting to avoid down-time due to column breakage.

Both Rtx and MXT® -Volatiles columns are made with a crossbonded stationary phase. This enhances overall phase stability and allows the column to be solvent-rinsed without loss of performance.

Applications:
volatile organics,
trihalomethanes.

Rtx-Volatiles (Fused Silica)

EPA Volatiles Organic Methods
Stable to 280C

ID	df(um)	temp. limits	30-Meter	60-Meter	105-Meter
0.25mm	1.00	-20 to 270/280°C	10900	10903	
0.32mm	1.50	-20 to 270/280°C	10901	10904	
0.53mm	2.00	-20 to 270/280°C	10902	10905	10906

MXT-Volatiles (Fused Silica)

EPA Volatiles Organic Methods
Stable to 280C

ID	df(um)	temp. limits	30-Meter	60-Meter	105-Meter
0.28mm	1.25	-20 to 280°C	70924	70926	70928
0.53mm	2.00	-20 to 280°C	70925	70927	70929
	3.00	-20 to 270°C	70922	70925	

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

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