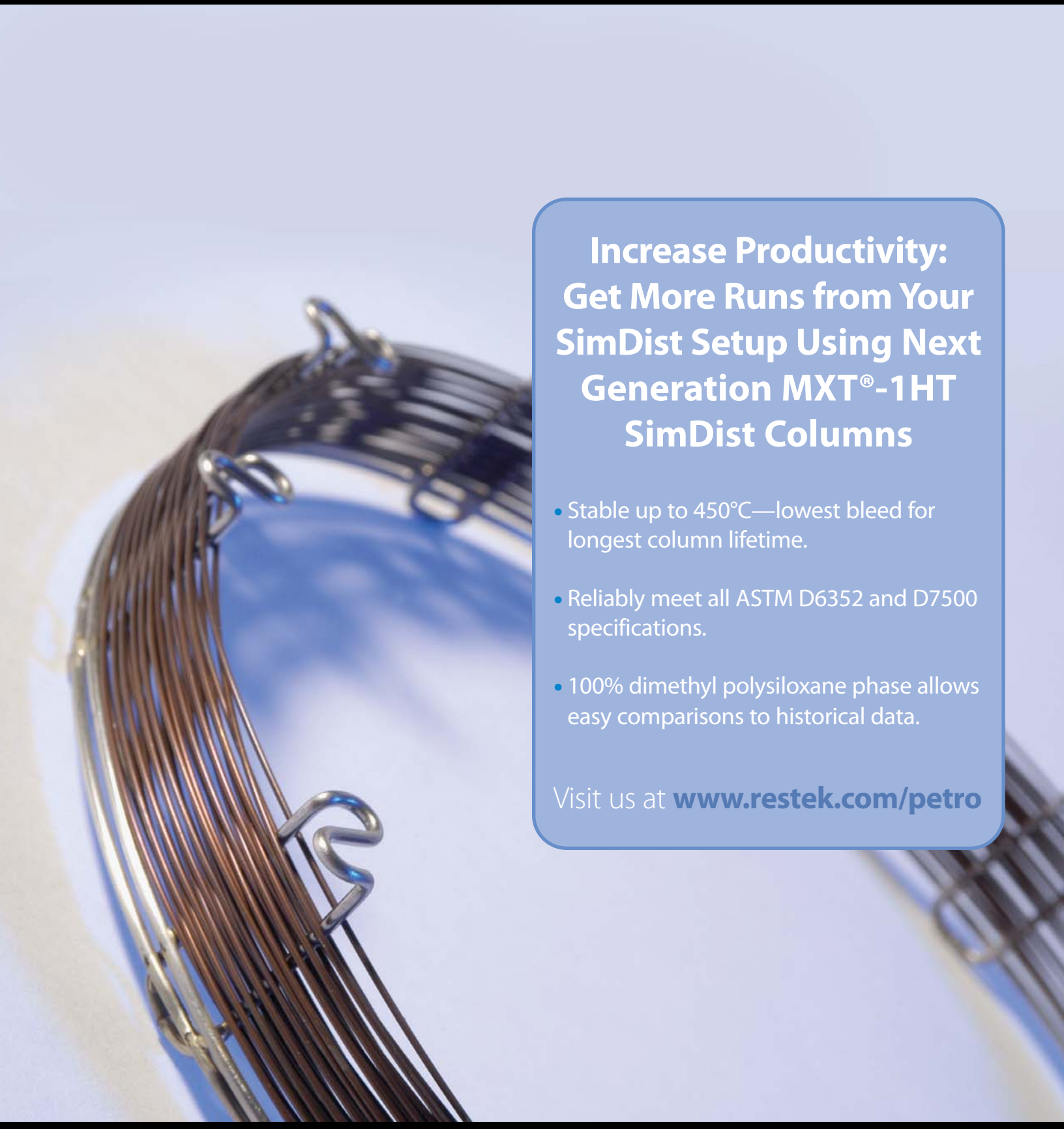
RESTEK REFINED innovative petrochemical solutions



Increase Productivity: Get More Runs from Your SimDist Setup Using Next Generation MXT®-1HT SimDist Columns

- 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.

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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 column available, outperforming other metal columns for critical method parameters.

Low bleed is an important column characteristic in simulated distillation. High phase bleed shortens retention times, making it necessary to frequently rerun boiling point calibrations. In contrast, with a low bleed column, the stationary phase remains in place giving stable retention times. This results in longer in-calibration periods, extended column lifetimes, and more accurate final boiling point determinations. Efficiency is also a critical factor as columns that are higher in efficiency produce sharper peaks and higher resolution values, meaning that more samples can be analyzed before the minimum resolution specification is reached.

When compared to columns from other manufacturers, MXT®-1HT SimDist columns meet all D6352 method criteria and easily outperform competitors (Figures 1 and 2). In addition, field testing under accelerated conditions further demonstrates column robustness, even at 450°C (Figure 3). The exceptionally low bleed and high efficiency characteristics of the new MXT®-1HT SimDist columns translate directly into assured method performance, more analyses per calibration, and longer column lifetimes.

Figure 1 Low bleed, high efficiency MXT®-1HT SimDist columns outperform competitors (ASTM D6352 conditions).

Lower bleed means:

- Longer column lifetime.
- More stable calibrations.
- Accurate boiling point determinations.

RESTEK ADVANTAGE:
Longer column lifetime and more accurate data!

Higher efficiency means:

- Greater resolution; analyze more samples before method criteria are reached.
- Assured method performance.

RESTEK ADVANTAGE:
Run more samples within method specifications!

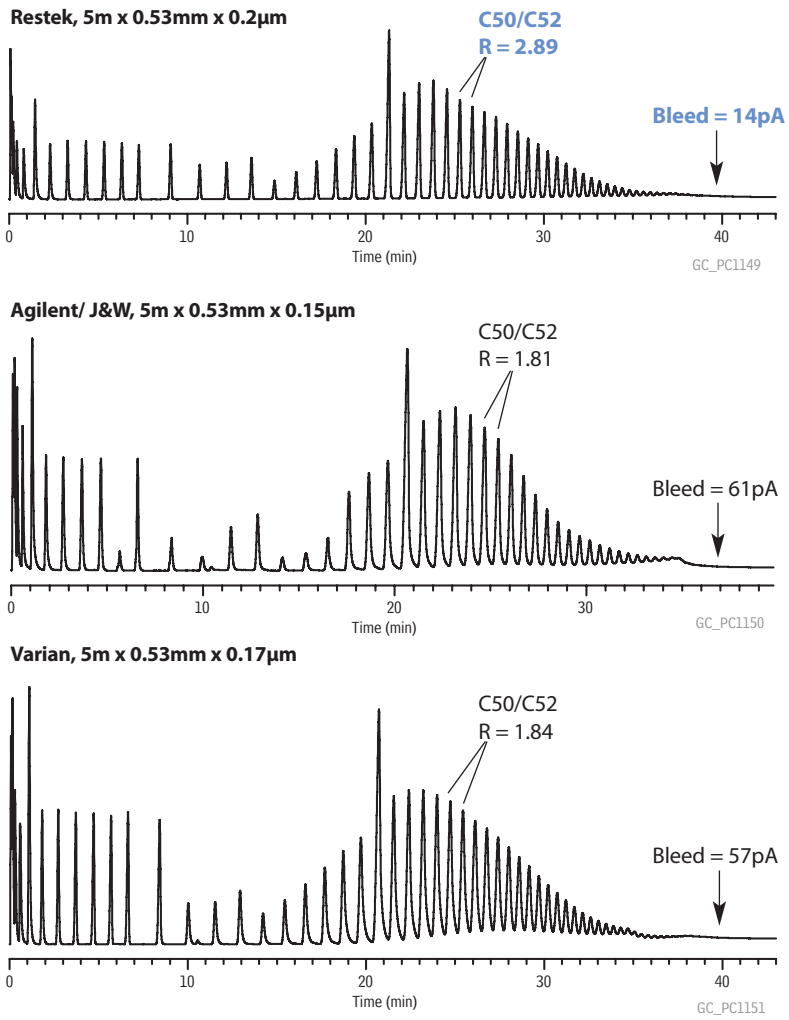
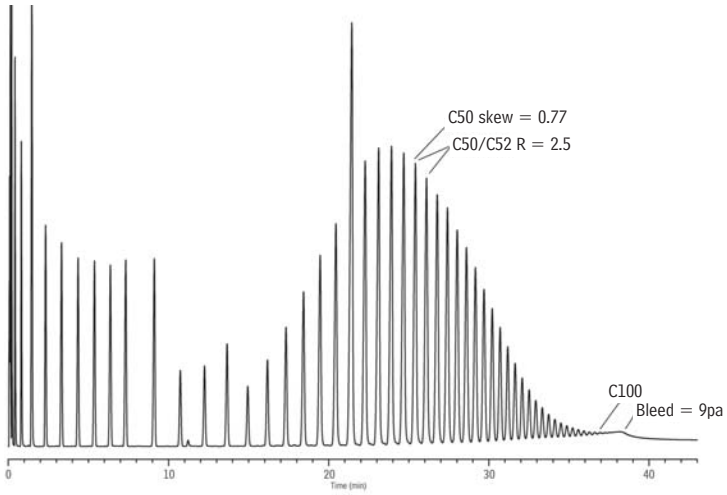


Figure 2 Superior resolution and peak shape on MXT®-1HT SimDist columns result in more accurate final boiling point determinations.



GC_PC01119

Column:	MXT®-1HT Sim Dist, 5m, 0.53mm ID, 0.20µm (cat.# 70115)
Sample:	C5-C100, 1% in carbon disulfide
Inj.:	1µL on-column (PTV)
Inj. temp.:	53°C to 430°C @ 10°C/min. (hold 5 min.)
Carrier gas:	helium, constant flow
Flow rate:	18mL/min.
Oven temp.:	50°C to 430°C @ 10°C/min. (hold 5 min.)
Det.:	FID @ 430°C
Instrument:	Shimadzu 2010

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

Replaces: DB-1HT, DB-HT SimDis, CP-HT-Simdist CB

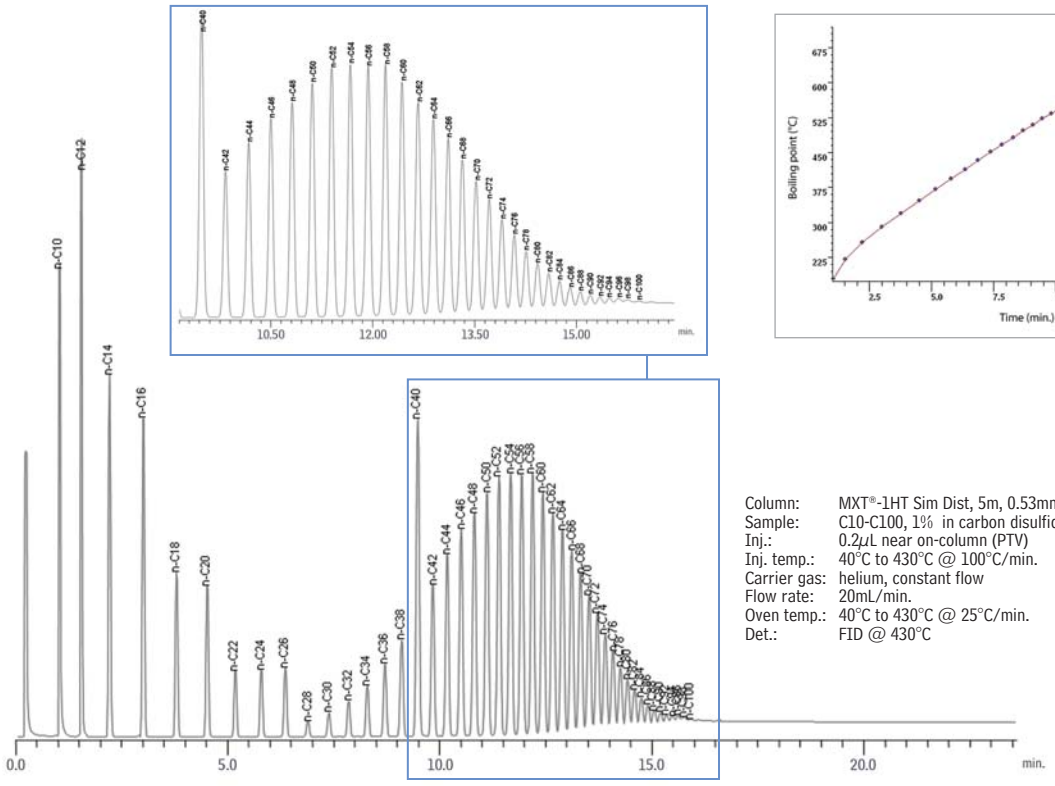
ID	df (µm)	temp. limits	length	cat. #
0.53mm	0.10	-60 to 430/450°C	5-Meter	70112
0.53mm	0.20	-60 to 430/450°C	5-Meter	70115
0.53mm	0.21	-60 to 430/450°C	10-Meter	70118
0.53mm	0.88	-60 to 400/430°C	5-Meter	70131
0.53mm	1.0	-60 to 380/400°C	10-Meter	70130
0.53mm	1.2	-60 to 380/400°C	10-Meter	70119
0.53mm	2.65	-60 to 360/400°C	10-Meter	70132
0.53mm	5.0	-60 to 360/400°C	10-Meter	70133

Table I: Recommended SimDist columns (100% PDMS) for use in ASTM SimDist methods.

ASTM Method	Range	Recommended Column
D2887	C5-C44	5/10m x 0.53mm, df = 0.88 – 2.65µm
D7213 (2887-ext)	C5-C60	5m x 0.53mm, df = 0.15 – 1.2µm
D3710	Gasoline up to FBP 260°C (C14)	10m x 0.53mm, df = 2.65µm
D5307	Crude up to FBP 538°C (C42)	5m x 0.53mm, df = 0.2µm PDMS
D6352/ D7500	C10-C90/ C7-C110	5m x 0.53mm, df = 0.1 – 0.2µm
D7169	C5-C100	5m x 0.53mm, df = 0.2 um

FBP = final boiling point

Figure 3 Robust MXT®-1HT SimDist columns meet all ASTM D6352 requirements, even under accelerated conditions.



Column:	MXT®-1HT Sim Dist, 5m, 0.53mm ID, 0.20µm (cat.# 70115)
Sample:	C10-C100, 1% in carbon disulfide
Inj.:	0.2µL near on-column (PTV)
Inj. temp.:	40°C to 430°C @ 100°C/min.
Carrier gas:	helium, constant flow
Flow rate:	20mL/min.
Oven temp.:	40°C to 430°C @ 25°C/min.
Det.:	FID @ 430°C

Chromatograms courtesy of Joaquin Lubkowitz, Separation Systems, Gulf Breeze, FL.

GC_PC01120

Practical Tips for High Temperature Analyses

Oxygen and moisture will dramatically reduce siloxane phase stability, especially at temperatures over 400°C. To ensure maximum column lifetime, follow these guidelines for proper instrument set-up.

- Use gas filters to remove oxygen and moisture from the carrier gas.

- When installing a column, prevent leaks by using a proper cutting device (such as a scoring wafer or MXT® tubing scorer) to ensure the column is not crushed. (cat. # 20523)

- Use graphite ferrules for column installation; Vespel®/graphite ferrules may leak, due to expansion and contraction at high temperatures (>400°C).

- Check the system for leaks using an electronic leak detector. (cat. # 22839)

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Lit. Cat.# PCFL1201A

Restek U.S. • 110 Benner Circle • Bellefonte, PA 16823 • 814-353-1300 • 800-356-1688 • fax: 814-353-1309 • **www.restek.com**
Restek France • phone: +33 (0)1 60 78 32 10 • fax: +33 (0)1 60 78 70 90 • e-mail: restek@restekfrance.fr
Restek GmbH • phone: +49 (0)6172 2797 0 • fax: +49 (0)6172 2797 77 • e-mail: info@restekgmbh.de
Restek Ireland • phone: +44 (0)2890 814576 • fax: +44 (0)2890 814576 • e-mail: restekeurope@aol.com
Restek Japan • phone: +81 (3)6459 0025 • fax: +81 (3)6459 0025 • e-mail: ryosei.kanaguchi@restek.com
Thames Restek U.K. LTD • phone: +44 (0)1494 563377 • fax: +44 (0)1494 564990 • e-mail: sales@thamesrestek.co.uk

ISO 9001:2008 cert.# FM80397