

## **True Blue Performance**



Improved Data, Fewer Liner Changes, and Less Downtime

Exceptionally inert Sky® inlet liners with state-of-the-art deactivation improve trace-level analysis—and now come with a 100% satisfaction guarantee!





Pure Chromatography

www.restek.com



## CHROMATOGRAPHIC SPECIALTIES INC.

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## **True Blue Performance**

- Increase accuracy and precision by preventing loss of sensitive analytes—even when using wool.
- Achieve lower detection limits for a wide range of active compounds.
- **Ensure liner-to-liner reproducibility** through consistent manufacturing and extensive testing.
- 100% customer satisfaction—if a liner doesn't perform to expectations, we will replace it or credit your account.\*

When faced with complex choices, simple solutions stand out. Sky® inlet liners from Restek use a comprehensive, state-of-the-art deactivation and are the only blue liners on the market—making them an easy-to-recognize solution to common inlet problems.

The innovative deactivation used for Sky® liners results in exceptional inertness for a wide range of analyte chemistries. By reducing active sites and enhancing analyte transfer to the column, these liners increase accuracy and precision, allowing lower detection limits for many active compounds. In addition to improved data quality, you'll benefit from fewer liner changes and less downtime for maintenance.



Sky® liners give you the inertness you need for more accurate trace-level results.

Selecting the right liner for your application can be a challenging task. Sky® inlet liners make the choice simple: The comprehensive deactivation, distinctive color, and availability in popular configurations mean Sky® liners are the best choice for optimizing chromatographic performance. Regardless of your application, Sky® liners provide reliable inertness and assured performance, day after day and analysis after analysis.

## The Story behind Sky® Liners

For over 25 years, Restek has been a leader in the development and manufacturing of GC and LC products. With Sky® liners, we created a novel, state-of-the-art deactivation process that provides better performance, lower detection limits, and unbeatable accuracy and precision—even when using wool. We also took full control of our production stream to ensure unparalleled reliability and reproducibility. And to prove that every Sky® liner offers True Blue Performance, each one is backed by a 100% satisfaction guarantee.\*

**But, why are they blue?** Restek has always been associated with the color blue because it signifies strength, innovation, and excellence. We made Sky® liners blue because it represents the technological advancements and unmatched quality that define Restek® products and service. Choose blue—the best choice for dependable results.

<sup>\*</sup> For details on our 100% satisfaction guarantee, see page 11.

## **Simple Solutions:**

Exceptionally Inert Sky® Inlet Liners Improve Accuracy and Precision for a Wide Range of Analytes

Many chromatographic problems, such as poor response and missing or tailing peaks, are caused by activity in the inlet liner. These effects complicate quantification and can be particularly problematic for sensitive analytes. Sky® inlet liners from Restek offer exceptional inertness, ensuring enhanced transfer of analytes to the column, good response, and highly symmetric peaks. The inertness of these liners is due to a state-of-the-art deactivation process that completely passivates the liner—and the wool—so that they are inert to a wide variety of reactive analytes.

Some deactivations, such as base deactivation, are effective only for particular target compound chemistries. In contrast, the balanced deactivation of Sky® liners prevents interactions with many chemical classes. With Sky® inlet liners, you will see improved sensitivity, accuracy, robustness, and reproducibility from liner to liner, which allows you to quantify challenging compounds at trace levels with confidence.

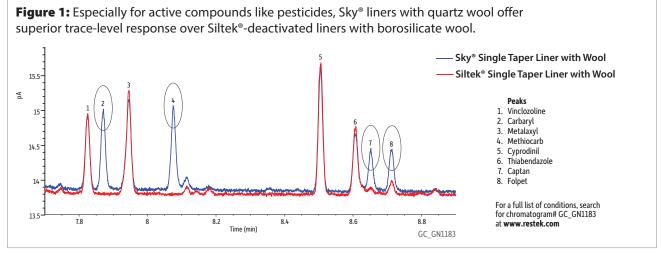
#### Prevent the Loss of Sensitive Analytes—Even When Using Wool

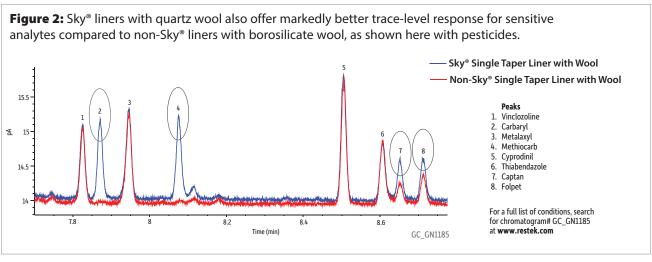
Sensitive analytes like carbaryl and methiocarb readily react with active sites in your inlet, especially when using a liner with wool. That reactivity makes these compounds difficult to analyze, but excellent for demonstrating inertness (i.e., the reduction of unwanted reactions between a liner and active compounds). Sky® liners with quartz wool offer superb results for these and other inertness probes even at low concentrations, whereas other leading deactivations using borosilicate wool show reduced response—or no response at all. When you are concerned about losing sensitive analytes, feel confident in choosing Sky® liners with wool.

**Table I:** Relative response factors for sensitive analytes using trace-level (100 pg on column) splitless injection.

|                          | Carbaryl | Methiocarb | Captan | Folpet |
|--------------------------|----------|------------|--------|--------|
| Sky® Liner w/Wool        | 0.718    | 0.720      | 0.380  | 0.403  |
| Siltek® Liner<br>w/Wool  | ND       | ND         | 0. 087 | 0. 150 |
| Non-Sky® Liner<br>w/Wool | ND       | ND         | 0.237  | 0.290  |

See Figures 1 and 2 for more details.



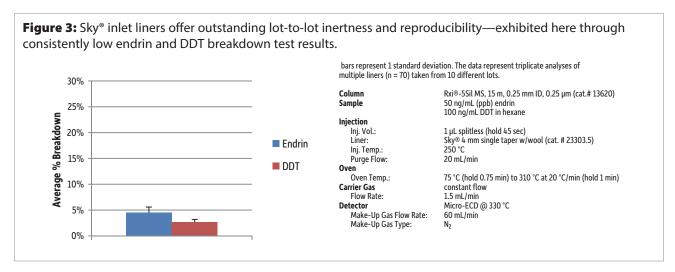


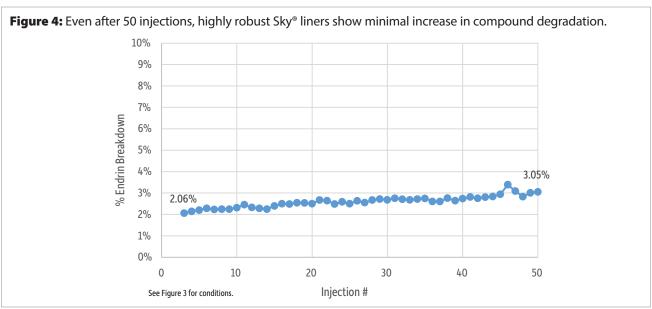
## **Simple Solutions:**

Exceptionally Inert Sky® Inlet Liners Improve Accuracy and Precision for a Wide Range of Analytes

#### **Ensure Consistent Data from Liner to Liner and Injection to Injection**

It's not good enough to have one quality liner. You have to be confident that *every liner you use* will give you the same high level of performance *every time you use it.* We test Sky® liners extensively to ensure they are exceptionally inert and will provide optimal results with every lot, liner, and injection.





### **Choose Blue: the Best Choice for Dependable Results**

Sky® liners provide exceptional inertness across a wide range of active analytes. The consistent, comprehensive deactivation process results in the accuracy and precision you need for reliable trace-level analyses. Simplify your liner selection—and improve your results—with Sky® liners from Restek. www.restek.com/sky

## **Product Listing**

## **Sky® Inlet Liners for Agilent GCs**

| Split Liners<br>for Agilent GCs           | ID<br>OD x Length          | Similar to Agilent Part #  | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
|---|----------------------------|--|--------------|----------------|-----------------|
| RESTEK 1 mm Split                         | 1.0 mm<br>6.3 mm x 78.5 mm | 18740-80200 (ea.)  | 23333.1      | 23333.5        | 23333.25        |
| RESTEK 4 mm Straight w/Wool               | 4.0 mm<br>6.3 mm x 78.5 mm | 19251-60540, 5190-2294 (ea.)<br>5183-4691, 5190-3164 (5-pk.)<br>5183-4692 (25-pk.)                     | 23300.1      | 23300.5        | 23300.25        |
| RESTEK 2 mm Precision Liner w/Wool        | 2.0 mm<br>6.3 mm x 78.5 mm | _  | 23468.1      | 23468.5        | _               |
| RESTEK 4 mm Precision Liner w/Wool        | 4.0 mm<br>6.3 mm x 78.5 mm | 210-4004-5 (5-pk.)   | 23305.1      | 23305.5        | 23305.25        |
| 4 mm Cyclo                                | 4.0 mm<br>6.3 mm x 78.5 mm |  | 23312.1      | 23312.5        | 23312.25        |
| Splitless Liners<br>for Agilent GCs       | ID<br>OD x Length          | Similar to Agilent Part #  | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
| RESTEK 2 mm Splitless                     | 2.0 mm<br>6.5 mm x 78.5 mm | 5181-8818 (ea.)<br>5183-4703 (5-pk.)<br>5183-4704 (25-pk.)   | 23313.1      | 23313.5        | 23313.25        |
| RESTEK 2 mm Splitless w/Wool              | 2.0 mm<br>6.5 mm x 78.5 mm |  | 23314.1      | 23314.5        | 23314.25        |
| RESTEK 2 mm Single Taper                  | 2.0 mm<br>6.5 mm x 78.5 mm |  | 23315.1      | 23315.5        | 23315.25        |
| RESTEK 2 mm Single Taper w/Wool           | 2.0 mm<br>6.5 mm x 78.5 mm |  | 23316.1      | 23316.5        | 23316.25        |
| RESTEK 4 mm Straight                      | 4.0 mm<br>6.3 mm x 78.5 mm | 210-3003 (ea.)<br>210-3003-05 (5-pk.)  | 23301.1      | 23301.5        | 23301.25        |
| RESTEK 4 mm Straight w/Wool               | 4.0 mm<br>6.3 mm x 78.5 mm | 19251-60540, 5190-2294 (ea.)<br>5183-4691, 5190-3164 (5-pk.)<br>5183-4692 (25-pk.)                     | 23300.1      | 23300.5        | 23300.25        |
| RESTEK 4 mm Single Taper                  | 4.0 mm<br>6.5 mm x 78.5 mm | 5181-3316 (ea.)<br>5183-4695 (5-pk.)<br>5183-4696 (25-pk.)   | 23302.1      | 23302.5        | 23302.25        |
| RESTEK 4 mm Single Taper w/Wool           | 4.0 mm<br>6.5 mm x 78.5 mm | 5062-3587, 5190-2293 (ea.)<br>5183-4693, 5190-3163 (5-pk.)<br>5183-4694 (25-pk.)                       | 23303.1      | 23303.5        | 23303.25        |
| 4 mm Double Taper                         | 4.0 mm<br>6.5 mm x 78.5 mm | 5181-3315 (ea.)<br>5183-4705 (5-pk.)<br>5183-4706 (25-pk.)   | 23308.1      | 23308.5        | 23308.25        |
| 4 mm Cyclo Double Taper                   | 4.0 mm<br>6.5 mm x 78.5 mm |  | 23310.1      | 23310.5        | 23310.25        |
| Split/Splitless Liners<br>for Agilent GCs | ID<br>OD x Length          | Similar to Agilent Part #  | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
| RESTEK<br>4 mm Straight w/Wool            | 4.0 mm<br>6.3 mm x 78.5 mm | 19251-60540, 5190-2294 (ea.)<br>5183-4691, 5190-3164 (5-pk.)<br>5183-4692 (25-pk.)                     | 23300.1      | 23300.5        | 23300.25        |
| Low Pressure Drop Precision Liner w/Wool  | 4.0 mm<br>6.3 mm x 78.5 mm |  | 23309.1      | 23309.5        |                 |
| RESTEK Low Pressure Drop Liner w/Wool     | 4.0 mm<br>6.3 mm x 78.5 mm | 5183-4647, 5183-4711, 5190-2295 (ea.)<br>5183-4701, 5183-4712, 5190-3165 (5-pk.)<br>5183-4713 (25-pk.) | 23467.1      | 23467.5        | 23467.25        |

Patent pending

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| CIS4 and PTV Liners             | ID                       |                           | ea.     | 5-pk.   | 10-pk.   |
|---------------------------------|--------------------------|---------------------------|---------|---------|----------|
| for Agilent GCs                 | OD x L                   | Similar to Agilent Part # | cat.#   | cat.#   | cat.#    |
| RESTÈK<br>On Column PTV         | 1.7 mm<br>3.0 mm x 71 mm |                           | 23430.1 | 23430.5 |          |
| RESTEK Single Baffle PTV        | 2.0 mm<br>3.0 mm 71 mm   | 5183-2036 (10-pk.)        |         |         | 23431.10 |
| RESTEK Single Baffle PTV w/Wool | 2.0 mm<br>3.0 mm 71 mm   | 5183-2038 (10-pk.)        |         |         | 23432.10 |
| RESTÈK<br>Baffled PTV           | 1.5 mm<br>3.0 mm 71 mm   | 5183-2037 (10-pk.)        |         |         | 23433.10 |
|                                 |                          |                           |         |         |          |

| Analytical Controls TPI Inlet Liners | ID             | 10-pk.    |
|--------------------------------------|----------------|-----------|
| for Agilent GCs                      | OD x L         | cat.#     |
| RESTEK                               | 2.4 mm         | 23429.10  |
| TPI for 0.53 mm ID columns           | 4.0 mm x 71 mm |           |
| RESTÈK                               | 2.4 mm         | 23428.10  |
| TPI for 0.25/0.32 mm ID columns      | 4.0 mm x 71 mm | 25 120.20 |

| SPME Liners          | ID                           | ea.     | 5-pk.   |
|----------------------|------------------------------|---------|---------|
| for Agilent GCs      | OD x Length                  | cat.#   | cat.#   |
| RESTÈK<br>SPME Liner | 0.75 mm<br>6.35 mm x 78.5 mm | 23434.1 | 23434.5 |

| Direct Injection Liners for Agilent GCs<br>(for 0.25/0.32/0.53mm ID Columns) | ID<br>OD x Length          | Similar to Agilent Part # | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
|--|----------------------------|---------------------------|--------------|----------------|-----------------|
| RESTEK  Drilled Uniliner (hole near bottom)                                  | 4.0 mm<br>6.3 mm x 78.5 mm | G1544-80730 (ea.)         | 23306.1      | 23306.5        | 23306.25        |
| Prilled Uniliner (hole near bottom) w/Wool                                   | 4.0 mm<br>6.3 mm x 78.5 mm |                           | 23307.1      | 23307.5        |                 |
| Prilled Uniliner (hole near top)   | 4.0 mm<br>6.3 mm x 78.5 mm |                           | 23311.1      | 23311.5        | 23311.25        |

Patent pending

#### **Sky® Inlet Liners for Bruker/Varian GCs**

| Liners<br>for Bruker/Varian 1177 S/SL Injection Ports | ID<br>OD x Length          | Similar to<br>Bruker/Varian Part # | ea.<br>cat.# | 5-pk.<br>cat.# |          |
|---|----------------------------|------------------------------------|--------------|----------------|----------|
| 4 mm Split Liner w/Glass Frit                         | 4.0 mm<br>6.3 mm x 78.5 mm |                                    | 23330.1      | 23330.5        |          |
| RESTEK 4 mm Precision Liner w/Wool                    | 4.0 mm<br>6.3 mm x 78.5 mm |                                    | 23328.1      | 23328.5        | <b>V</b> |
| RESTEK 4 mm Single Taper                              | 4.0 mm<br>6.5 mm x 78.5 mm | 392611927                          | 23331.1      | 23331.5        | <b>V</b> |
| RESTEK<br>4 mm Single Taper w/Wool                    | 4.0 mm<br>6.5 mm x 78.5 mm | 392611936                          | 23332.1      | 23332.5        | <b>V</b> |

| SPI Liners<br>for Bruker/Varian S/SL Injection Ports | ID<br>OD x L              | Similar to<br>Bruker/Varian Part # | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
|--|---------------------------|------------------------------------|--------------|----------------|-----------------|
| RESTEK<br>SPI Liner                                  | 0.53 mm<br>4.6 mm x 54 mm | 190010906                          | 23460.1      | 23460.5        |                 |
| RESTEK<br>SPI Liner                                  | 0.8 mm<br>4.6 mm x 54 mm  | 190010907                          | 23461.1      | 23461.5        | 23461.25        |

| Liners<br>for Bruker/Varian 1078/1079 Injection Ports | ID<br>OD x Length         | Similar to<br>Bruker/Varian Part # | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
|---|---------------------------|------------------------------------|--------------|----------------|-----------------|
| RESTEK  3.4 mm Split–No Frit                          | 3.4 mm<br>5.0 mm x 54 mm  | 392611945                          | 23329.1      | 23329.5        | 23329.25        |
| RESTEK<br>Split w/Glass Frit                          | 3.4 mm<br>5.0 mm X 54 mm  | 392611946                          | 23462.1      | 23462.5        |                 |
| RESTEK  | 2.0 mm<br>5.0 mm X 54 mm  | 392611947                          | 23463.1      | 23463.5        |                 |
| RESTEK<br>SPME Liner                                  | 0.75 mm<br>5.0 mm X 54 mm | 392611948                          | 23465.1      | 23465.5        |                 |
| RESTEK Split Precision Liner w/Wool                   | 3.4 mm<br>5.0 mm X 54 mm  |                                    | 23466.1      | 23466.5        | <b>V</b>        |

Patent pending



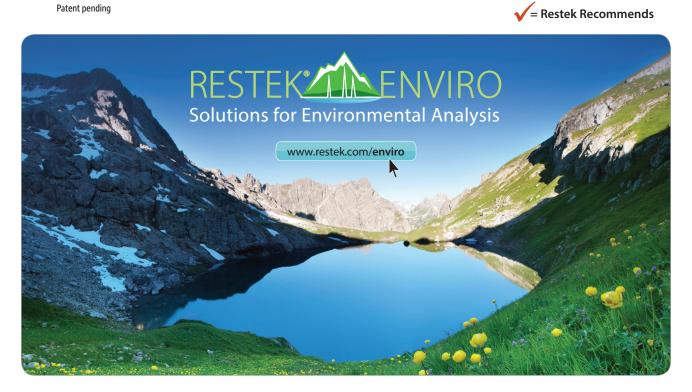


Sky® inlet liners are easy to recognize as the best choice for optimal chromatography. All Sky® liners come in specially marked boxes and are packaged in ultra-clean blister packs.

## **Product Listing**

#### **Sky® Inlet Liners for PerkinElmer GCs**

| Splitter w/Wool 6.2 mm x 92.1 mm  4 mm Split Precision Liner w/Wool 6.2 mm x 92.1 mm  Splitless Liners ID | 16502009<br>16121020<br>ar to PE Part # | 23449.1<br>23450.1<br>ea. | 23449.5<br>23450.5<br><b>5-pk.</b> |                 |
|---|---|---------------------------|------------------------------------|-----------------|
| 4 mm Split Precision Liner w/Wool 6.2 mm x 92.1 mm  Splitless Liners ID                                   |   | ea.                       |                                    |                 |
|   | ar to PE Part #                         |                           | 5-pk.                              |                 |
|   |   | cat.#                     | cat.#                              |                 |
| 2.0 mm Splitless w/Wool 6.2 mm x 92.1 mm  | N6121021                                | 23451.1                   | 23451.5                            |                 |
| PSS Liners ID for PerkinElmer GCs OD x Length Simila  | ar to PE Part #                         | ea.<br>cat.#              | 5-pk.<br>cat.#                     | 25-pk.<br>cat.# |
| RESTER 2.0 mm N Auto SYS XL PSS Split/Splitless w/Wool 4.0 mm x 86.2 mm                                   | N6121004                                | 23317.1                   | 23317.5                            | 23317.25        |
| DI Liners ID for PerkinElmer GCs OD x L Simila  | ar to PE Part #                         | ea.<br>cat.#              | 5-pk.<br>cat.#                     |                 |
| RESTEK 4.0 mm N Open-Top Uniliner w/Wool 6.2 mm x 92.1 mm   | N6502016                                | 23452.1                   | 23452.5                            |                 |
| Prilled Uniliner (hole near top)  4.0 mm 6.2 mm x 92.1 mm   | N6121022                                | 23453.1                   | 23453.5                            |                 |
| Prilled Uniliner (hole near bottom)  4.0 mm  6.2 mm x 92.1 mm   | N6502013                                | 23454.1                   | 23454.5                            |                 |



**Split Liners** 

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Similar to

5-pk.

ea.

25-pk.

Patent pending



## **Product Listing**

#### **Sky® Inlet Liners for Thermo Scientific GCs**

| Split Liners<br>for Thermo TRACE GC Ultra and Focus SSL     | ID<br>OD x Length          | Similar to TS Part # | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
|---|----------------------------|----------------------|--------------|----------------|-----------------|
| RESTÈK Split Straight                                       | 3.0 mm<br>8.0 mm x 105 mm  | 453 20031            | 23439.1      | 23439.5        | 23439.25        |
| RESTEK Split Straight w/Wool                                | 3.0 mm<br>8.0 mm x 105 mm  |                      | 23440.1      | 23440.5        | 23440.25        |
| RESTEK 5 mm Straight  | 5.0 mm<br>8.0 mm x 105 mm  | 453 20030            | 23323.1      | 23323.5        | 23323.25        |
| RESTEK 5 mm Straight w/Wool                                 | 5.0 mm<br>8.0 mm x 105 mm  |                      | 23324.1      | 23324.5        | 23324.25        |
| RESTEK<br>5 mm Precision Liner w/Wool                       | 5.0 mm<br>8.0 mm x 105 mm  |                      | 23327.1      | 23327.5        | •               |
| Splitless Liners<br>for Thermo TRACE GC Ultra and Focus SSL | ID<br>OD x Length          | Similar to TS Part # | ea.<br>cat.# | 5-pk.<br>cat.# | 25-pk.<br>cat.# |
| RESTEK Splitless  | 3.0 mm<br>8.0 mm x 105 mm  | 453 20032            | 23441.1      | 23441.5        | 23441.25        |
| RESTEK Splitless w/Wool                                     | 3.0 mm<br>8.0 mm x 105 mm  |                      | 23442.1      | 23442.5        | 23442.25        |
| RESTEK Splitless Precision Liner w/Wool                     | 5.0 mm<br>8.0 mm x 105 mm  |                      | 23443.1      | 23443.5        |                 |
| RESTEK 5 mm Splitless                                       | 5.0 mm<br>8.0 mm x 105 mm  | 453 20033            | 23325.1      | 23325.5        | 23325.25        |
| RESTEK 5 mm Splitless w/Wool                                | 5.0 mm<br>8.0 mm x 105 mm  |                      | 23326.1      | 23326.5        | 23326.25        |
| Split Liners<br>for Thermo TRACE 1300 Series GCs            | ID<br>OD x L               |                      | ea.<br>cat.# | 5-pk.<br>cat.# |                 |
| RESTÈK<br>Split   | 1.0 mm<br>6.3 mm x 78.5 mm |                      | 23448.1      | 23448.5        |                 |

Patent pending

COLUMN INSTALLS THIS END





### **Choose the Best Liner**

To better understand liner features and quickly determine which Sky® inlet liner is right for your application, download our Liner Anatomy poster and in-depth bench guide—or request printed copies—at www.restek.com/posters

You can also read our blogs and technical articles on liner selection at **www.restek.com/sky** 



#### **Sky® Inlet Liners for Thermo Scientific GCs**

| Splitless Liners for Thermo TRACE 1300 Series GCs          | ID<br>OD x L               |                      | ea.<br>cat.# | 5-pk.<br>cat.# |  |
|--|----------------------------|----------------------|--------------|----------------|--|
| RESTEK<br>Splitless Straight                               | 4.0 mm<br>6.3 mm x 78.5 mm |                      | 23445.1      | 23445.5        |  |
| RESTEK<br>4 mm Splitless Single Taper                      | 4.0 mm<br>6.5 mm x 78.5 mm |                      | 23446.1      | 23446.5        |  |
| RESTEK<br>4 mm Splitless Single Taper w/Wool               | 4.0 mm<br>6.5 mm x 78.5 mm |                      | 23447.1      | 23447.5        |  |
| Split/Splitless Liners<br>for Thermo TRACE 1300 Series GCs | ID<br>OD x L               |                      | ea.<br>cat.# | 5-pk.<br>cat.# |  |
| RESTEK<br>4 mm Split/Splitless Straight w/Wool             | 4.0 mm<br>6.3 mm x 78.5 mm |                      | 23444.1      | 23444.5        |  |
| Split Liners<br>for Thermo Scientific TRACE PTV            | ID<br>OD x L               | Similar to TS Part # | ea.<br>cat.# | 5-pk.<br>cat.# |  |
| Split PTV  | 1.0 mm<br>2.75 mm x 120 mm | 453 22054            | 23436.1      | 23436.5        |  |
| Split PTV  | 2.0 mm<br>2.75 mm x 120 mm | 453 22045            | 23437.1      | 23437.5        |  |
|  | 2.0 mm                     |                      | 23438.1      | 23438.5        |  |



<sup>\* 100%</sup> SATISFACTION GUARANTEE: If your Sky® inlet liner does not perform to your expectations for any reason, simply contact Restek® Technical Service or your local Restek® representative and provide a sample chromatogram showing the problem. If our GC experts are not able to quickly and completely resolve the issue to your satisfaction, you will be given an account credit or replacement product (same cat.#) along with instructions for returning any unopened product. (Do not return product prior to receiving authorization.) For additional details about Restek's return policy, visit www.restek.com/warranty

# Increased Availability and 100% Guaranteed Performance\*



Restek is now offering a 100% satisfaction guarantee for all Sky® inlet liners. These exceptionally inert liners are now produced with new proprietary Restek® processes and apply some of the industry's tightest testing specifications. The Sky® liners analysts want most are in stock now and guaranteed to exceed your expectations.

# Sky

\* For details on our 100% satisfaction guarantee, visit www.restek.com/sky

#### **Available for:**

Agilent • Bruker/Varian • PerkinElmer Shimadzu • Thermo Scientific





www.restek.com/sky



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Lit. Cat.# GNBR2049A-UNV



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