## CarboBlack Packing Materials

- CarboBlack B supports up to 10% loading of a nonsilicone liquid phase.
- CarboBlack C supports up to 1% loading of a nonsilicone liquid phase.

Graphitized carbon black offers unique selectivity and very little adsorption for alcohol analyses. Two types of CarboBlack supports are available, CarboBlack B and CarboBlack C. CarboBlack B support, with its higher surface area, can hold up to a 10% loading of a nonsilicone liquid phase. CarboBlack C support can hold up to a 1% loading of a nonsilicone liquid phase. Many Carbowax® 20M-loaded CarboBlack packings are available. CarboBlack packings are treated with KOH or picric acid for basic or acidic compounds, and special alcoholic beverage loadings are available. CarboBlack supports provide resolution and retention similar to Carbopack™ and Carbograph supports.

### did you know?

**CarboBlack supports replace**
- Carbopack™
- Carbograph

| Description | Temp. Limit | Mesh | Min. Qty. | cat.# |
|---|---|---|---|---|
| CarboBlack B | 500 °C | 60/80 | 10 g | 25500 |
| | 500 °C | 80/120 | 10 g | 25501 |
| CarboBlack C | 500 °C | 60/80 | 10 g | 25502 |
| | 500 °C | 80/100 | 10 g | 25503 |
| CarboBlack BHT-100 | 150 °C | 40/60 | 10 g | 25504 |
| CarboBlack III (F) | 175 °C | 80/100 | 10 g | 25506 |
| 5% Carbowax 20m on CarboBlack B | 225 °C | 80/120 | 10 g | 25507 |
| 6.6% Carbowax 20m on CarboBlack B | 225 °C | 80/120 | 10 g | 25508 |
| 4% Carbowax 20m / 0.8% KOH on CarboBlack B | 220 °C | 60/80 | 10 g | 25509 |
| 0.19% picric acid on CarboBlack C | 120 °C | 80/100 | 10 g | 25510 |
| 4% Carbowax 20m on CarboBlack B-DA | 200 °C | 80/120 | 10 g | 25511 |

Minimum order of 10 grams. Price is per gram.


# Technical Service

Do you have a technical question? Restek's Technical Service group has answers! Drawing from our extensive libraries of technical information and many years of collective chromatography experience, the experts in Technical Service can help you with everything from setup to method development.

## Contact us:

For quick answers to commonly asked questions any time of the day, visit **www.restek.com/answers** or contact us directly:

**In the U.S.:** Phone: 1-800-356-1688, ext. 4 • e-mail: support@restek.com

**Hours of operation (Eastern Time):**
*Monday - Thursday, 8:00 a.m. to 6:00 p.m.*
*Friday, 8:00 a.m. to 5:00 p.m.*

**Outside the U.S.:** Contact International Technical Service at intltechsupp@restek.com or find a local distributor at **www.restek.com/distributor**

# Packed Column Packing Materials

## also available

Custom packing materials are also available.

See **page 148**.

Put our decades of experience to work for you.

## Res-Sil® Packing Materials

- Unique separation of saturated and unsaturated hydrocarbons.
- Innovative bonding chemistry for batch-to-batch reproducibility, excellent thermal stability, and long life.
- Wide range of bonded phases available.
- Equivalent to Durapak and Porasil packings.

Bonded silica packings with *n*-octane or cyanopropyl (OPN) functional groups yield faster separations of C1 to C4 hydrocarbons, higher thermal stability, shorter conditioning times, and longer lifetimes than conventional packings. However, bonded silica packings have had inconsistent reproducibility and limited availability. Restek's research team has solved these age-old problems by developing Res-Sil® C packings for consistent performance.

### Unique Selectivity for Process GC and High-Speed Analysis of Petrochemicals

Res-Sil® C bonded packings are ideal for fast resolution of difficult-to-separate saturated and unsaturated C4 hydrocarbons (see page 139). This unique selectivity, when combined with other columns in series, provides petroleum and petrochemical method developers with a powerful tool for fast determination of C1 to C5 hydrocarbons.[1]

### Innovative Research and Stringent QC Provide Batch-to-Batch Consistency

Restek's synthesis procedure eliminates batch-to-batch variations. The amount of bonded liquid phase is precisely controlled in every batch for reproducible retention times and separations. Each production batch of Res-Sil® C packing is tested with a complex hydrocarbon mixture to meet demanding retention time and retention index specifications and to ensure there are no retention shifts. Column bleed is also evaluated to ensure that baselines remain low.

### OPN on Res-Sil® C Packing—the Latest in a Line of Bonded GC Phases

Restek offers a wide range of bonded packings for packed column GC, including Rtx®-1, Stabilwax®, and Carbowax® phases. We have extended this technology to make *n*-octane on Res-Sil® C packing, and OPN on Res-Sil® C packing. Each of these packings has low bleed, conditioning times of less than 30 minutes, long lifetime, and consistent batch-to-batch reproducibility.

## did you know?

**Res-Sil® replaces**
- Porasil B
- Porasil C
- Durapak

| Description | temp. limits | Mesh | Min. Qty. | cat.# |
|---|---|---|---|---|
| Res-Sil C | 300 °C | 60/80 | 10 g | 25400 |
| | 300 °C | 80/100 | 10 g | 25028 |
| Res-Sil B | 300 °C | 60/80 | 10 g | 25401 |
| | 300 °C | 80/100 | 10 g | 25080 |
| 1% TCEP on Res-Sil B | 175 °C | 80/100 | 10 g | 25081 |
| OPN on Res-Sil C | 150 °C | 80/100 | 10 g | 25042 |
| *n-Octane on Res-Sil C* | 150 °C | 80/100 | 10 g | 25030 |
| 2% Carbowax 1540 on Res-Sil C | 150 °C | 80/100 | 10 g | 25044 |

Minimum order of 10 grams. Price is per gram.

[1]N.C. Saha, S.K. Jain, and R.K. Dua. J. Chromat. Sci 1978, 323-328.

## Porapak Packing Materials

| Description | temp. limits | g/btl. | Mesh 50/80 cat.# | Mesh 80/100 cat.# | Mesh 100/120 cat.# |
|---|---|---|---|---|---|
| Porapak P | 250 °C | 20 g | 25576 | 25577 | 25578 |
| Porapak PS | 250 °C | 20 g | 25579 | 25580 | 25581 |
| Porapak Q | 250 °C | 26 g | 25582 | 25583 | 25584 |
| Porapak QS | 250 °C | 26 g | 25585 | 25586 | 25587 |
| Porapak R | 250 °C | 24 g | 25588 | 25589 | 25590 |
| Porapak S | 250 °C | 26 g | 25591 | 25592 | 25593 |
| Porapak N | 190 °C | 29 g | 25594 | 25595 | 25596 |
| Porapak T | 190 °C | 31 g | 25597 | 25598 | 25599 |

### also available

Custom packing materials are also available.

See **page 148**.

## HayeSep® Packing Materials

| Description | temp. limits | g/btl. | Mesh 60/80 cat.# | Mesh 80/100 cat.# | Mesh 100/120 cat.# |
|---|---|---|---|---|---|
| HayeSep A | 165 °C | 24 g | 22560 | 25032 | 25033 |
| HayeSep B | 190 °C | 24 g | 25561 | 25034 | 25035 |
| HayeSep C | 250 °C | 24 g | 25562 | 25036 | 25037 |
| HayeSep D | 290 °C | 24 g | 25563 | 25038 | 25039 |
| HayeSep DIP | 290 °C | 24 g | 25564 | 25565 | 25566 |
| HayeSep DB | 290 °C | 24 g | 25567 | 25568 | 25569 |
| HayeSep DOX | | | (Use HayeSep DB) | | |
| HayeSep N | 165 °C | 24 g | 25570 | 25045 | 25046 |
| HayeSep P | 250 °C | 24 g | 25571 | 25047 | 25048 |
| HayeSep Q | 275 °C | 24 g | 25572 | 25049 | 25050 |
| HayeSep R | 250 °C | 24 g | 25573 | 25051 | 25052 |
| HayeSep S | 250 °C | 24 g | 25574 | 25053 | 25054 |
| HayeSep T | 165 °C | 24 g | 25575 | 25055 | 25056 |


## Tenax® Packing Materials

| Description | temp. limits | Min. Qty. | Mesh 60/80 cat.# | Mesh 80/100 cat.# |
|---|---|---|---|---|
| Tenax-TA | 350 °C | 10 g | 25550 | 25551 |
| Tenax-GR | 350 °C | 10 g | 25552 | 25553 |