



## CHROMABOND<sup>®</sup> SiOH unmodified silica

### ★ Key features

- Very polar
- Adsorbs humidity from air, for this reason it should be kept well closed and if necessary dried before use
- Due to its high affinity for polar compounds it should not be conditioned with polar (e.g., methanol) or water-containing solvents.

### 🔧 Technical characteristics

- Unmodified, weakly acidic silica, pore size 60 Å, particle size 45 µm, specific surface 500 m<sup>2</sup>/g, pH stability 2–8

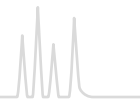
### ✓ Recommended application

- Aflatoxins, chloramphenicol, pesticides, steroids, vitamins

## Ordering information

| Volume  | Adsorbent weight →         |         |            |             | 2 g         | 5 g    | 10 g   | 50 g   | Pack of |
|---|----------------------------|---------|------------|-------------|-------------|--------|--------|--------|---------|
|   | 100 mg                     | 200 mg  | 500 mg     | 1 g         |             |        |        |        |         |
| <b>CHROMABOND<sup>®</sup> SiOH polypropylene columns</b>            |                            |         |            |             |             |        |        |        |         |
| 1 mL  | 730071                     |         |            |             |             |        |        |        | 100     |
| 3 mL  |                            | 730214  | 730073     |             |             |        |        |        | 50      |
| 6 mL  |                            |         | 730070     | 730075      | 730107      |        |        |        | 30      |
| 15 mL   |                            |         |            |             | 730217      |        |        |        | 20      |
| 45 mL   |                            |         |            |             |             | 730406 |        |        | 20      |
| 70 mL   |                            |         |            |             |             |        | 730072 |        | 10      |
| 150 mL  |                            |         |            |             |             |        |        | 730473 | 10      |
| <b>CHROMABOND<sup>®</sup> SiOH polypropylene columns · BIGpacks</b> |                            |         |            |             |             |        |        |        |         |
| 3 mL  |                            |         | 730073.250 |             |             |        |        |        | 250     |
| 6 mL  |                            |         |            | 730075.250  | 730107.250  |        |        |        | 250     |
| <b>CHROMABOND<sup>®</sup> SiOH glass columns</b>                    |                            |         |            |             |             |        |        |        |         |
| 3 mL  |                            | 730214G | 730073G    |             |             |        |        |        | 50      |
| 6 mL  |                            |         | 730070G    | 730075G     | 730107G     |        |        |        | 30      |
| <b>CHROMABOND<sup>®</sup> LV-SiOH</b>                               |                            |         |            |             |             |        |        |        |         |
| 15 mL   |                            | 732072  | 732073     |             |             |        |        |        | 30      |
| <b>CHROMAFIX<sup>®</sup> SiOH cartridges</b>                        |                            |         |            |             |             |        |        |        |         |
|   | Size →                     | S       | M          | L           |             |        |        |        | Pack of |
|   | Minimum adsorbent weight → | 60 mg   | 190 mg     | 490 mg      |             |        |        |        |         |
|   |                            | 731828  | 731829     | 731830      |             |        |        |        | 50      |
| <b>CHROMABOND<sup>®</sup> MULTI 96 SiOH</b>                         |                            |         |            |             |             |        |        |        |         |
|   |                            |         |            | 96 x 100 mg |             |        |        |        | Pack of |
|   |                            |         |            |             | 738071.100M |        |        |        | 1       |
| <b>CHROMABOND<sup>®</sup> SiOH adsorbent</b>                        |                            |         |            |             |             |        |        |        |         |
|   |                            |         |            |             |             | 730608 |        |        | 100 g   |

For further applications on CHROMABOND<sup>®</sup> phases visit our online application database at [www.mn-net.com/apps](http://www.mn-net.com/apps)



## CHROMABOND® NH<sub>2</sub> aminopropyl silica

### ★ Key features

- Polar, weak anion exchanger

### 🔧 Technical characteristics

- Base material silica, pore size 60 Å, particle size 45 µm, specific surface 500 m<sup>2</sup>/g, pH stability 2–8
- Aminopropyl phase, carbon content 3.5 %

### ✓ Recommended application

- Trace elements, lipids

Metals: trace elements from water

MN Appl. No. 301910

Compounds investigated: Al, Be, Cu, Cr(VI), Mo(VI), V(V)

#### Column type:

CHROMABOND® NH<sub>2</sub>, 3 mL, 500 mg

REF 730033

#### Sample pretreatment:

mix 100 mL water sample with 5 mL 0.001 % alizarinsulfonic acid solution and adjust to pH 5.5 with acetic acid or sodium acetate




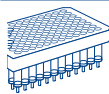

Column conditioning: 2 column volumes 1 mol/L nitric acid, then 2 column volumes dist. water

Sample application: force or aspirate sample through the column with 3–4 mL/min

Column washing: 2 mL dist. water; dry column under vacuum for 4 min

Elution: 2 column volumes 2 mol/L nitric acid

## Ordering information

|   | Volume  | Adsorbent weight → |        |             | 1 g         | Pack of |
|---|---|--------------------|--------|-------------|-------------|---------|
|   |   | 100 mg             | 200 mg | 500 mg      |             |         |
|  | <b>CHROMABOND® NH<sub>2</sub> polypropylene columns</b>           |                    |        |             |             |         |
|   | 1 mL  | 730031             |        |             |             | 100     |
|   | 3 mL  |                    | 730413 | 730033      |             | 50      |
|   | 6 mL  |                    |        | 730180      | 730626      | 30      |
|   | <b>CHROMABOND® NH<sub>2</sub> polypropylene columns · BIGpack</b> |                    |        |             |             |         |
|   | 3 mL  |                    |        | 730033.250  |             | 250     |
|   | <b>CHROMABOND® NH<sub>2</sub> glass columns</b>                   |                    |        |             |             |         |
|   | 3 mL  |                    |        | 730033G     |             | 50      |
|   | 6 mL  |                    |        | 730180G     | 730626G     | 30      |
|  | <b>CHROMABOND® LV-NH<sub>2</sub></b>                              |                    |        |             |             |         |
|   | 15 mL   |                    |        | 732033      |             | 30      |
|  | Size →  |                    | S      |             |             |         |
|   | Minimum adsorbent weight →  |                    | 70 mg  |             | Pack of     |         |
|   | <b>CHROMAFIX® NH<sub>2</sub> cartridges</b>                       |                    |        |             |             |         |
|   |   |                    | 731813 |             |             | 50      |
|  | <b>CHROMABOND® MULTI 96 NH<sub>2</sub></b>                        |                    |        |             | 96 x 100 mg | Pack of |
|   |   |                    |        | 738031.100M |             | 1       |
|  | <b>CHROMABOND® NH<sub>2</sub> adsorbent</b>                       |                    |        |             |             |         |
|   |   |                    |        | 730603      |             | 100 g   |



## CHROMABOND® OH (Diol) diol silica

### ★ Key features

- Polar, properties similar to SiOH



### 🔧 Technical characteristics

- Base material silica, pore size 60 Å, particle size 45 µm, specific surface 500 m<sup>2</sup>/g, pH stability 2–8
- Diol phase, carbon content 5.5 %

### ✓ Recommended application

- Antibiotics, prostaglandins

### Ordering information

|   | Volume   | Adsorbent weight → |        |        | Pack of |
|---|--|--------------------|--------|--------|---------|
|   |  | 100 mg             | 200 mg | 500 mg |         |
|  | <b>CHROMABOND® OH (Diol) polypropylene columns</b> |                    |        |        |         |
|   | 1 mL   | 730051             |        |        | 100     |
|   | 3 mL   |                    | 730417 | 730053 | 50      |
|   | 6 mL   |                    |        | 730418 | 30      |
|  | <b>CHROMABOND® OH (Diol) adsorbent</b>             |                    |        |        |         |
|   |  |                    |        | 730605 | 100 g   |

Glass columns, LV columns, CHROMAFIX® cartridges and MULTI 96 on request.

## CHROMABOND® CN cyanopropyl silica

### ★ Key features

- In addition to weak hydrophobic interactions selective interactions are possible due to the high electron density of the CN group.
- Polar to midpolar



### 🔧 Technical characteristics

- Base material silica, pore size 60 Å, particle size 45 µm, specific surface 500 m<sup>2</sup>/g, pH stability 2–8
- Cyanopropyl phase, carbon content 5.5 %

### ✓ Recommended application

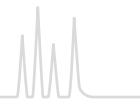
- Cyclosporins, carbohydrates

### Ordering information

|   | Volume                                      | Adsorbent weight → |        |        | Pack of |
|---|---|--------------------|--------|--------|---------|
|   |   | 100 mg             | 200 mg | 500 mg |         |
|  | <b>CHROMABOND® CN polypropylene columns</b> |                    |        |        |         |
|   | 1 mL  | 730061             |        |        | 100     |
|   | 3 mL  |                    | 730420 | 730063 | 50      |
|   | 6 mL  |                    |        | 730421 | 30      |
|  | <b>CHROMABOND® CN adsorbent</b>             |                    |        |        |         |
|   |   |                    |        | 730607 | 100 g   |

Glass columns, LV columns, CHROMAFIX® cartridges and MULTI 96 on request.

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## CHROMABOND<sup>®</sup> HILIC zwitterionic polar phase with ammonium sulfonic acid modification

### Technical characteristics

- Basic material silica, pore size 60 Å, particle size 45 µm, specific surface 500 m<sup>2</sup>/g, pH stability 2–8

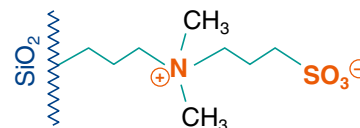
### Recommended application

- Polar organic acids and bases, polar natural compounds, nucleosides, oligonucleotides, amino acids, peptides, water-soluble vitamins

### Hydrophilic interaction liquid chromatography

A water-rich layer is formed on the surface of the adsorbent, which enables stronger interactions for polar than for nonpolar analytes. Thus polar analytes are more strongly retained than nonpolar compounds. This behavior is inverse (orthogonal) to RP materials like, e.g., CHROMABOND<sup>®</sup> C<sub>18</sub> ec.

In HILIC-HPLC (e.g., NUCLEODUR<sup>®</sup> HILIC) increase of the portion of water in the eluent results in reduction of the retention times – consequently enrichment in SPE is the more difficult, the higher the portion of water in the sample matrix. Elution of the analytes is achieved with water.



#### Standard protocol MN Appl. No. 305580

**Column type:**  
CHROMABOND<sup>®</sup> HILIC, 3 mL, 500 mg  
REF 730593

**Sample pretreatment:** A high part of acetonitrile in the sample is recommended. Aqueous samples must be diluted with acetonitrile (recommended: water – acetonitrile (1:3, v/v)). Dioxane or THF can be used instead of acetonitrile.

**Column conditioning:** 1 mL water (Do not let run the column dry!)

**Equilibration:** 6 mL acetonitrile or the organic solvent, dilute the sample

**Sample application:** prepared sample is passed dropwise through the column

**Column washing:** if necessary 0.5–2 mL acetonitrile or the organic solvent, dilute the sample

**Elution:** 1–2 mL water (dependent on analyte)

Further analysis: if necessary, evaporate and redissolve in a suitable solvent; HPLC or GC

#### Creatinine and creatine from water: variation of the organic solvent MN Appl. No. 305590

**Column type:**  
CHROMABOND<sup>®</sup> HILIC, 3 mL, 500 mg  
REF 730593

**Sample pretreatment:** 250 µL of aqueous sample are diluted with 750 µL tetrahydrofuran, 1,4-dioxane or acetonitrile

**Column conditioning:** 1 mL water (Do not let run the column dry!)

**Equilibration:** 5 mL tetrahydrofuran, 1,4-dioxane or acetonitrile

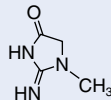
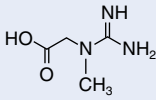
**Sample application:** prepared sample is passed dropwise through the column

**Column washing:** 3 x 1 mL tetrahydrofuran, 1,4-dioxane or acetonitrile


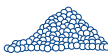
**Elution:** 1 mL water

Further analysis: HPLC with NUCLEODUR<sup>®</sup> HILIC according to MN Appl. No. 122990 (injection volume: 5 µL)

#### Recovery rates [%]

| Compound        |  |  |
|-----------------|---|---|
|                 | Creatinine  | Creatine  |
| Tetrahydrofuran | 105 %   | 101 %   |
| 1,4-dioxane     | 83 %  | 95 %  |
| Acetonitrile    | 0 %   | 97 %  |

### Ordering information

|   | Volume  | Adsorbent weight → |        | Pack of |
|---|---|--------------------|--------|---------|
|   |   | 500 mg             | 1 g    |         |
|  | <b>CHROMABOND<sup>®</sup> HILIC polypropylene columns</b> |                    |        |         |
|   | 3 mL  | 730593             |        | 50      |
|   | 6 mL  | 730594             | 730596 | 30      |
|  | <b>CHROMABOND<sup>®</sup> HILIC adsorbent</b>             |                    |        |         |
|   |   |                    | 730643 | 100 g   |



## CHROMABOND® Alox A / Alox N / Alox B aluminum oxide, acidic, neutral, basic




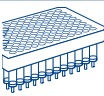

### ★ Key features

- Alox A: aluminum oxide, acidic pH value  $4 \pm 0.5$
- Alox N: aluminum oxide, neutral pH value  $7 \pm 0.5$
- Alox B: aluminum oxide, basic pH value  $9.5 \pm 0.5$

### 🔧 Technical characteristics

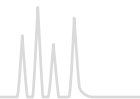
- Aluminum oxide, high purity, pore volume 0.90 mL/g, particle size 60–150  $\mu\text{m}$ , specific surface 150  $\text{m}^2/\text{g}$

### Ordering information

| Phases  | Volume                     | Adsorbent weight → |         |             | Pack of |
|---|----------------------------|--------------------|---------|-------------|---------|
|   |                            | 500 mg             | 1 g     | 4 g         |         |
|  <b>CHROMABOND® Alox polypropylene columns</b> |                            |                    |         |             |         |
| Alox A  | 3 mL                       | 730452             |         |             | 50      |
| Alox A  | 6 mL                       | 730453             | 730017  |             | 30      |
| Alox A  | 45 mL                      |                    |         | 730455      | 20      |
| Alox N  | 3 mL                       | 730446             |         |             | 50      |
| Alox N  | 6 mL                       | 730447             | 730139  |             | 30      |
| Alox N  | 45 mL                      |                    |         | 730250      | 20      |
| Alox B  | 3 mL                       | 730429             |         |             | 50      |
| Alox B  | 6 mL                       | 730466             | 730020  |             | 30      |
| Alox B  | 45 mL                      |                    |         | 730467      | 20      |
| <b>CHROMABOND® Alox glass columns</b>   |                            |                    |         |             |         |
| Alox N  | 6 mL                       |                    | 730139G |             | 30      |
| Alox B  | 6 mL                       |                    | 730020G |             | 30      |
|  <b>CHROMABOND® LV-Alox</b>                   |                            |                    |         |             |         |
| Alox A  | 15 mL                      |                    | 732210  |             | 30      |
| Alox N  | 15 mL                      |                    | 732091  |             | 30      |
| Alox B  | 15 mL                      |                    | 732205  |             | 30      |
|  <b>CHROMAFIX® Alox cartridges</b>           |                            |                    |         |             |         |
|   | Size →                     | M                  | L       |             |         |
| Phase   | Minimum adsorbent weight → | 450 mg             | 1200 mg |             | Pack of |
| Alox N  |                            | 731844             | 731845  |             | 50      |
|  <b>CHROMABOND® MULTI 96 Alox</b>            |                            |                    |         |             |         |
|   |                            |                    |         | 96 x 100 mg | Pack of |
| Alox A  |                            |                    |         | 738253.100M | 1       |
| Alox N  |                            |                    |         | 738251.100M | 1       |
| Alox B  |                            |                    |         | 738252.100M | 1       |
|  <b>CHROMABOND® Alox adsorbents</b>          |                            |                    |         |             |         |
| Alox A  |                            |                    |         | 730642      | 100 g   |
| Alox N  |                            |                    |         | 730641      | 100 g   |
| Alox B  |                            |                    |         | 730640      | 100 g   |



# CHROMABOND® normal phases



## CHROMABOND® Florisil® magnesium silicate

### Technical characteristics

- Matrix magnesium silicate (MgO - SiOH 15:85), high purity, particle size 150–250 µm

### Recommended application

- Organic tin compounds, aliphatic carboxylic acids, PCBs, PAHs

### Ordering information

|  | Volume   | Adsorbent weight → |         |            | Pack of |     |
|--|--|--------------------|---------|------------|---------|-----|
|  |  | 200 mg             | 500 mg  | 1 g        |         | 2 g |
|  | <b>CHROMABOND® Florisil® polypropylene columns</b>           |                    |         |            |         |     |
|  | 3 mL   | 730457             | 730081  |            | 50      |     |
|  | 6 mL   |                    | 730238  | 730082     | 730239  | 30  |
|  | <b>CHROMABOND® Florisil® polypropylene columns · BIGpack</b> |                    |         |            |         |     |
|  | 6 mL   |                    |         | 730082.250 | 250     |     |
|  | <b>CHROMABOND® Florisil® glass columns</b>                   |                    |         |            |         |     |
|  | 6 mL   |                    | 730238G | 730082G    | 730239G | 30  |
|  | Size →   |                    | L       |            | Pack of |     |
|  | Minimum adsorbent weight →                                   |                    | 700 mg  |            |         |     |
|  | <b>CHROMAFIX® Florisil® cartridges</b>                       |                    |         |            |         |     |
|  |  |                    | 731848  |            | 50      |     |
|  | <b>CHROMABOND® Florisil® adsorbent</b>                       |                    |         |            |         |     |
|  |  |                    |         | 730622     | 100 g   |     |

LV columns and MULTI 96 on request.

## CHROMABOND® PA polyamide 6

### Technical characteristics

- Matrix polyamide 6, unmodified, high purity, particle size 40–80 µm

### Recommended application

- Flavonoids, PAHs

### Ordering information

|  | Volume                                      | Adsorbent weight → |        |        | Pack of |
|--|---|--------------------|--------|--------|---------|
|  |   | 200 mg             | 500 mg | 1 g    |         |
|  | <b>CHROMABOND® PA polypropylene columns</b> |                    |        |        |         |
|  | 3 mL  | 730384             | 730126 |        | 50      |
|  | 6 mL  |                    | 730007 | 730127 | 30      |
|  | Size →                                      |                    | S      | L      | Pack of |
|  | Minimum adsorbent weight →                  |                    | 30 mg  | 260 mg |         |
|  | <b>CHROMAFIX® PA cartridges</b>             |                    |        |        |         |
|  |   |                    | 731849 | 731851 | 50      |
|  | <b>CHROMABOND® PA adsorbent</b>             |                    |        |        |         |
|  |   |                    |        | 730660 | 100 g   |

Glass columns, LV columns and MULTI 96 on request.