

TSKgel® Amide-80 Products

| Part Numbers: Columns | | | |
|------------------------------|-------------------------------|------------------------------------|----------------------------------|
| 2 µm, UHPLC Compatible | 3 µm | 5 µm | 10 µm |
| 23454, 2 mm ID x 5 cm, 2 µm | 21864, 2 mm ID x 5 cm, 3 µm | 21982, 4.6 mm ID x 25 cm, 5 µm, HR | 14459, 7.8 mm ID x 30 cm, 10 µm |
| 23455, 2 mm ID x 10 cm, 2 µm | 21865, 2 mm ID x 15 cm, 3 µm | | 14460, 21.5 mm ID x 30 cm, 10 µm |
| 23456, 2 mm ID x 15 cm, 2 µm | 22850, 3 mm ID x 5 cm, 3µm | 20009, 1 mm ID x 5 cm, 5 µm | |
| 23457, 3 mm ID x 5 cm, 2 µm | 22851, 3 mm ID x 10 cm, 3µm | 20010, 1 mm ID x 10 cm, 5 µm | |
| 23458, 3 mm ID x 10 cm, 2 µm | 22852, 3 mm ID x 15 cm, 3µm | 21486, 1 mm ID x 15 cm, 5 µm | |
| 23459, 3 mm ID x 15 cm, 2 µm | 21866, 4.6 mm ID x 5 cm, 3µm | 21487, 1 mm ID x 25 cm, 5 µm | |
| | 22849, 4.6 mm ID x 10 cm, 3µm | 19694, 2 mm ID x 5 cm, 5 µm | |
| | 21867, 4.6 mm ID x 15 cm, 3µm | 19695, 2 mm ID x 10 cm, 5 µm | |
| | | 19696, 2 mm ID x 15 cm, 5 µm | |
| | | 19697, 2 mm ID x 25 cm, 5 µm | |
| | | 19532, 4.6 mm ID x 5 cm, 5 µm | |
| | | 19533, 4.6 mm ID x 10 cm, 5 µm | |
| | | 13071, 4.6 mm ID x 25 cm, 5 µm | |

| Part Numbers: Guard Products | | | |
|--------------------------------------|--|--|--|
| 2 µm, UHPLC Compatible | 3 µm | 5 µm | 10 µm |
| 23460, Guard Column for 2 µm columns | 21862, Guard Cartridge for 2 mm ID & 3 mm ID, 3 µm columns, 2 mm ID x 1 cm | 21941, Guard Cartridge for 2 mm ID, 5 µm columns, 2 mm ID x 1 cm | 14461, Guard Column for 21.5 mm ID, 10 µm column |
| | 19308, Guard Cartridge Holder for 2 mm ID cartridges, 2 mm ID x 1 cm | 19308, Guard Cartridge Holder for 2 mm ID cartridges, 2 mm ID x 1 cm | |
| | 21863, Guard Cartridge for 4.6 mm ID, 3 µm columns, 3.2 mm ID x 1.5 cm | 19021, Guard Column for 4.6 mm ID, 5 µm columns, 4.6 mm ID x 1 cm | |
| | 19018, Guard Cartridge Holder for 3.2 mm ID cartridges, 3.2 mm ID x 1.5 cm | 19010, Guard Cartridge for 4.6 mm ID, 5 µm columns, 3.2 mm ID x 1.5 cm | |
| | | 19018, Guard Cartridge Holder for 3.2 mm ID cartridges, 3.2 mm ID x 1.5 cm | |

This sheet contains the recommended operating conditions and the specifications for TSKgel Amide-80 columns. Installation instructions and column care information are described in a separate Instruction Manual.

| A. OPERATING CONDITIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--|-----------|---------|----------|---------------------------------------|----------|---|----------|---|----------|------------------|---------|----------------------|---------|-----------------------|---------|-----------------------|----------|-----------------------|---------|----------------------|---------|-----------------------|----------|-----------------------|----------|--|---------|--------------------------|---------|---------------------------|
| 1. Shipping Solvent: | 85% Acetonitrile/15% Water for 2 µm, 3 µm & HR columns 75% Acetonitrile/25% Water for 5 µm & 10 µm columns, guardgel for 5 µm, 2 mm ID columns & guard column for 10 µm columns 50% Acetonitrile/50% Water for guardgel for 3 µm columns & guardgel for 5 µm, 4.6 mm ID column 100% Acetonitrile for guard column for 2 µm columns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Max. Pressure: | <table border="1"> <thead> <tr> <th>Pressure:</th> <th>Column:</th> </tr> </thead> <tbody> <tr> <td>40.0 MPa</td> <td>2 mm ID x 5 cm & 3 mm ID x 5 cm, 2 µm</td> </tr> <tr> <td>60.0 MPa</td> <td>2 mm ID x 10 cm & 3 mm ID x 10 cm, 2 µm</td> </tr> <tr> <td>80.0 MPa</td> <td>2 mm ID x 15 cm & 3 mm ID x 15 cm, 2 µm</td> </tr> <tr> <td>20.0 MPa</td> <td>all 3 µm columns</td> </tr> <tr> <td>3.0 MPa</td> <td>1 mm ID x 5 cm, 5 µm</td> </tr> <tr> <td>6.0 MPa</td> <td>1 mm ID x 10 cm, 5 µm</td> </tr> <tr> <td>9.0 MPa</td> <td>1 mm ID x 15 cm, 5 µm</td> </tr> <tr> <td>12.0 MPa</td> <td>1 mm ID x 25 cm, 5 µm</td> </tr> <tr> <td>4.0 MPa</td> <td>2 mm ID x 5 cm, 5 µm</td> </tr> <tr> <td>8.0 MPa</td> <td>2 mm ID x 10 cm, 5 µm</td> </tr> <tr> <td>10.0 MPa</td> <td>2 mm ID x 15 cm, 5 µm</td> </tr> <tr> <td>15.0 MPa</td> <td>2 mm ID x 25 cm & all 4.6 mm ID columns (including HR), 5 µm</td> </tr> <tr> <td>7.0 MPa</td> <td>7.8 mm ID x 30 cm, 10 µm</td> </tr> <tr> <td>3.0 MPa</td> <td>21.5 mm ID x 30 cm, 10 µm</td> </tr> </tbody> </table> | Pressure: | Column: | 40.0 MPa | 2 mm ID x 5 cm & 3 mm ID x 5 cm, 2 µm | 60.0 MPa | 2 mm ID x 10 cm & 3 mm ID x 10 cm, 2 µm | 80.0 MPa | 2 mm ID x 15 cm & 3 mm ID x 15 cm, 2 µm | 20.0 MPa | all 3 µm columns | 3.0 MPa | 1 mm ID x 5 cm, 5 µm | 6.0 MPa | 1 mm ID x 10 cm, 5 µm | 9.0 MPa | 1 mm ID x 15 cm, 5 µm | 12.0 MPa | 1 mm ID x 25 cm, 5 µm | 4.0 MPa | 2 mm ID x 5 cm, 5 µm | 8.0 MPa | 2 mm ID x 10 cm, 5 µm | 10.0 MPa | 2 mm ID x 15 cm, 5 µm | 15.0 MPa | 2 mm ID x 25 cm & all 4.6 mm ID columns (including HR), 5 µm | 7.0 MPa | 7.8 mm ID x 30 cm, 10 µm | 3.0 MPa | 21.5 mm ID x 30 cm, 10 µm |
| Pressure: | Column: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40.0 MPa | 2 mm ID x 5 cm & 3 mm ID x 5 cm, 2 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60.0 MPa | 2 mm ID x 10 cm & 3 mm ID x 10 cm, 2 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80.0 MPa | 2 mm ID x 15 cm & 3 mm ID x 15 cm, 2 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20.0 MPa | all 3 µm columns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.0 MPa | 1 mm ID x 5 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.0 MPa | 1 mm ID x 10 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.0 MPa | 1 mm ID x 15 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.0 MPa | 1 mm ID x 25 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.0 MPa | 2 mm ID x 5 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.0 MPa | 2 mm ID x 10 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10.0 MPa | 2 mm ID x 15 cm, 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15.0 MPa | 2 mm ID x 25 cm & all 4.6 mm ID columns (including HR), 5 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.0 MPa | 7.8 mm ID x 30 cm, 10 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.0 MPa | 21.5 mm ID x 30 cm, 10 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. pH Range: | 2.0 - 7.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. Organic Conc.: | 2 µm & 3 µm: 0 - 100% polar and nonpolar (switch to 95% acetonitrile before switching to 100% nonpolar solvents) 5 µm, including HR, & 10 µm: *0 - 100% polar and nonpolar (*switch to 100% acetonitrile before switching to 100% nonpolar solvents) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. Temperature: | 2 µm & 3 µm: 10 - 50 °C 5 µm, including HR, & 10 µm: 10 - 80 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

DS1052 Revised 1MARCH2015

Tosoh Bioscience LLC
3604 Horizon Drive, Suite 100
King of Prussia, PA 19406
Phone: (484) 805-1219
Orders & Technical Service: (800) 366-4875
FAX: (610) 272-3028

Tosoh Bioscience GmbH
Im Leuschnerpark 4, 64347
Griesheim, Germany
Phone/ FAX: +49-6155-7043700

| | |
|-----------------------|---|
| 6. Cleaning Solvents: | To remove hydrophobic compounds: >50% acetonitrile solution. To remove hydrophilic compounds: <50% acetonitrile solution. To remove basic compounds: 50% acetonitrile/50 mmol/L phosphate buffer, pH 6.0 = 50/50 |
| 7. Storage: | Store the column in the shipping solvent when it will not be used the next day. For overnight storage flush the column with the mobile phase at 50% of the recommended flow rate for the column. |
| 8. Column Protection: | The use of guard columns is recommended to prolong the life of the analytical column. Guard column life depends greatly on sample cleanliness. As a general rule, guard columns should be replaced after every 30-40 sample injections, when the peaks become excessively wide, or when the peaks show splitting. |

B. SPECIFICATIONS

The performance of TSKgel Amide-80 columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications:

| | | |
|---|---|---|
| 1. Min. Number of Theoretical Plates (N): | N: | Column: |
| | 5,800 | 2 mm ID x 5 cm, 2 µm |
| | 14,000 | 2 mm ID x 10 cm, 2 µm |
| | 21,500 | 2 mm ID x 15 cm, 2 µm |
| | 8,300 | 3 mm ID x 5 cm, 2 µm |
| | 16,500 | 3 mm ID x 10 cm, 2 µm |
| | 24,000 | 3 mm ID x 15 cm, 2 µm |
| | | |
| | 3,500 | 2 mm ID x 5 cm, 3 µm |
| | 13,000 | 2 mm ID x 15 cm, 3 µm |
| | 5,500 | 3 mm ID x 5 cm, 3 µm |
| | 11,000 | 3 mm ID x 10 cm, 3 µm |
| | 16,000 | 3 mm ID x 15 cm, 3 µm |
| | 6,000 | 4.6 mm ID x 5 cm, 3 µm |
| | 12,000 | 4.6 mm ID x 10 cm, 3 µm |
| | 18,500 | 4.6 mm ID x 15 cm, 3 µm |
| | | |
| | 300 | 1 mm ID x 5 cm, 5 µm |
| | 600 | 1 mm ID x 10 cm, 5 µm |
| | 4,000 | 1 mm ID x 15 cm, 5 µm |
| | 6,000 | 1 mm ID x 25 cm, 5 µm |
| | 1,000 | 2 mm ID x 5 cm, 5 µm |
| | 2,000 | 2 mm ID x 10 cm, 5 µm |
| | 4,000 | 2 mm ID x 15 cm, 5 µm |
| | 6,000 | 2 mm ID x 25cm, 5 µm |
| | 1,500 | 4.6 mm ID x 5 cm, 5 µm |
| | 3,000 | 4.6 mm ID x 10 cm, 5 µm |
| | 8,000 | 4.6 mm ID x 25 cm, 5 µm |
| | 18,000 | 4.6 mm ID x 25 cm, 5 µm, HR |
| | | |
| 5,000 | 7.8 mm ID x 30 cm, 10 µm | |
| 8,000 | 21.5 mm ID x 30 cm, 10 µm | |
| 2. Asymmetry Factor (AF): | *There are no asymmetry specifications for 5 µm, 4.6 mm ID (with the exception of HR) and 10 µm, 7.8 mm ID & 21.5 mm ID columns | |
| | AF: | Column: |
| | 0.90 - 1.60 | all 2 µm columns |
| | | |
| | 0.90 - 1.25 | all 2 mm and 3 mm ID columns, 3 µm |
| | 0.90 - 1.20 | all 4.6 mm ID columns, 3 µm |
| | | |
| | 1.0 - 2.0 | 1 mm ID x 5 cm, 1 mm ID x 10 cm, 5 µm |
| | 0.7 - 1.8 | 1 mm ID x 15 cm, 1 mm ID x 25 cm, all 2 mm ID columns, 5 µm |
| | 0.90 - 1.30 | 4.6 mm ID x 25 cm, 5 µm, HR |