LC-MS CONSUMABLES

PepSep® Consumables

Everything you need for your standard
and advanced proteomics workflows

Innovation with Integrity

More samples.
Less time.
Better reproducibility.

Achieve precise separation of peptides and proteins with our cutting-edge reversed-phase HPLC columns. Experience deeper sequence coverage, higher sample throughput, and robustness, meeting the demands of even the most challenging samples. Tested at ultra fast PASEF® speeds, PepSep columns are robust, easy to use, and provide consistent results making it the perfect choice for your proteomics applications.

How do PepSep columns work?

Reversed-phase chromatography is a liquid chromatography method that separates analytes based on their hydrophobic interactions. It uses a stationary phase with hydrocarbon chains bonded to small particles (60–150 Å) that have high carbon content, offering a large surface area for better retention and resolution of peptides and proteins. PepSep columns are also durable, making them suitable for tough samples.

What we offer:

- **PepSep Advanced**
  Advanced columns delivering superior sensitivity and resolution for cutting-edge proteomics.

- **PepSep Classics**
  Reliable and versatile columns designed for routine proteomic analyses.

- **PepSep Emitter**
  Ready to use fused silica emitter. Simple plug and play design.

PepSep Advanced:
Designed for Consistent, High-Quality Protein and Peptide Separation

PepSep Advanced columns support accurate detection and quantification of a wide range of proteins and peptides across diverse proteomics applications. Their design enables high sensitivity while minimizing clogging and back pressure, offering a practical alternative to traditional pulled-tip columns.

Key Features

- **Leading Sensitivity:** Detects low-abundance peptides with maximum confidence.

- **Enhanced Peak Sharpness:** Achieves precise separations for improved data clarity.

- **Comprehensive Identifications:** Expands protein and peptide discovery capabilities.

- **Uncompromised Robustness:** Optimized flow dynamics and lower back pressure for smoother and faster operation.

Lynn Spruce

Technical Director, CHOP-PENN Proteomic Core Facility, Philadelphia, USA

"The new PepSep column has proven to be robust and consistently delivers reproducible chromatography. It produces sharper, more symmetrical peaks with no observable tailing, resulting in a 7–8% increase in identifications. Combined with the convenience of interchangeable emitters and competitive pricing, it has become our go-to column. It's essentially plug-and-play."
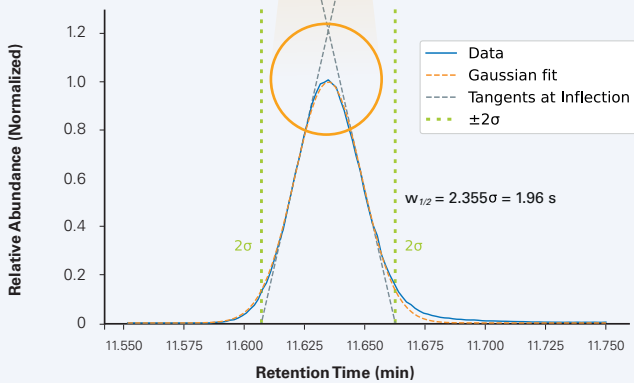
PepSep
Advanced
25 cm x 75 µm x 1.5 µm

- Part No.: 1919826
- Stationary Phase: C18
- Column type: reversed phase
- Pore size: 100 Å (1.5 µm)
- Surface area: 400 m²/g (1.5 µm)
- Temperature limits: 60°C

- Ultra-High-Pressure inlet (up to 1000 bar)
- Patented nanoConnect outlet
- Flow rate: 100 - 500 nL/min
- Applications: Single Cell Proteomics, Immunopeptidomics, General Proteomics, Plasma Proteomics, Analysis of PTM peptides, e.g., phosphopeptides

Achieves precise separations for improved data clarity
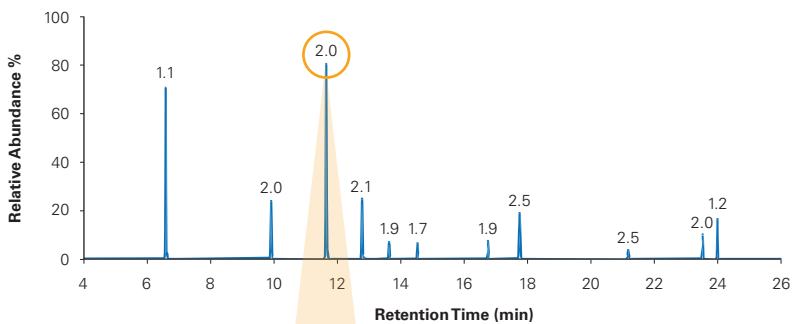
FWHM determination of Peak 3 using Gaussian Fit

FWHM (Peak 3): 1.96 s
Tailing (Peak 3): 1.06

Average FWHM (Peak 1-11): 1.89 s
Average Tailing (Peak 1-11): 1.04

$w_{1/2} = 2.355\sigma = 1.96$ s

Figure 1. Retention times and peak widths of Biognosys iRT Kit peptides (1 µL injection volume, 1/300 dilution of stock solution) on a PepSep Advanced column (25 cm x 75 µm x 1.5 µm) coupled to nanoElute 2 and timsTOF Ultra, using a 22-minute active gradient.

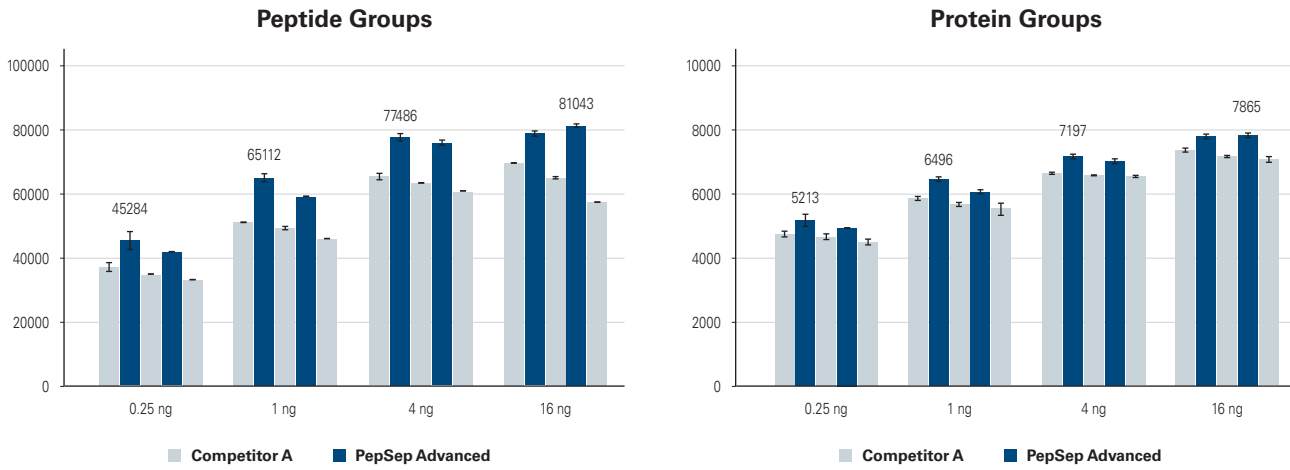# Developed for Ultimate Sensitivity and enhanced Peptide Coverage

Figure 2. Identified unique peptide and protein groups, from 0.25, 1, 4 and 16 ng HeLa Tryptic Digest injection on an PepSep Advanced column (25 cm x 75 µm x 1.5 µm) and Competitor A Column (pulled tip column, 25 cm x 75 µm x 1.7 µm). Samples were run on a nanoElute 2 coupled to a Bruker timsTOF Ultra 2, dia-PASEF acquisition. Data analysed using DIA-NN 1.8.1.
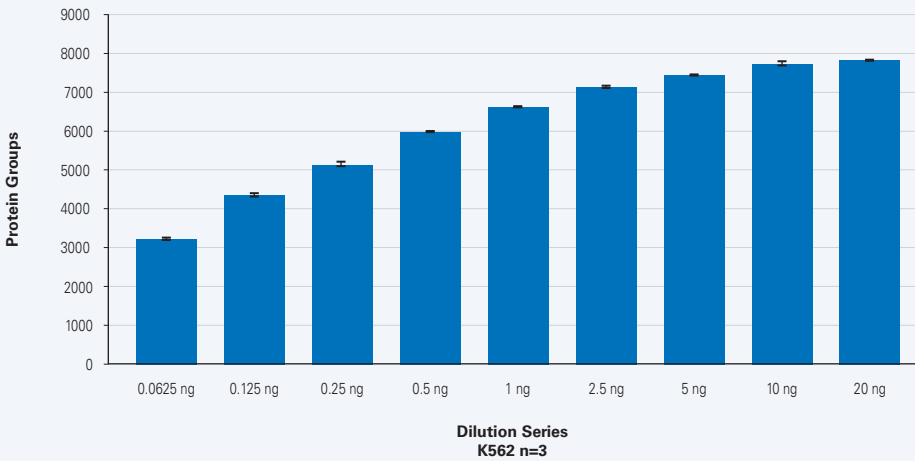

Figure 3. Identified unique protein groups, from various amounts of K562 injections on an PepSep Advanced column (25 cm x 75 µm x 1.5 µm) using a 22 min active gradient. Samples were run on a nanoElute 2 coupled to a Bruker timsTOF Ultra AIP, dia-PASEF acquisition. Data analysed using DIA-NN 1.8.1 and K562 lib-based.

# Experience deeper sequence coverage, higher sample throughput, and robustness.

Balyn W. Zaro, Ph.D.

Assistant Professor, Department of Pharmaceutical Chemistry, University of California, San Francisco, USA

"PepSep columns are the best columns I have ever worked with. Their performance and durability are unprecedented. Best-in-class at a fantastic price point. We are customers for life."
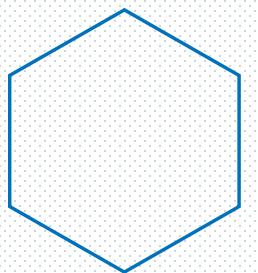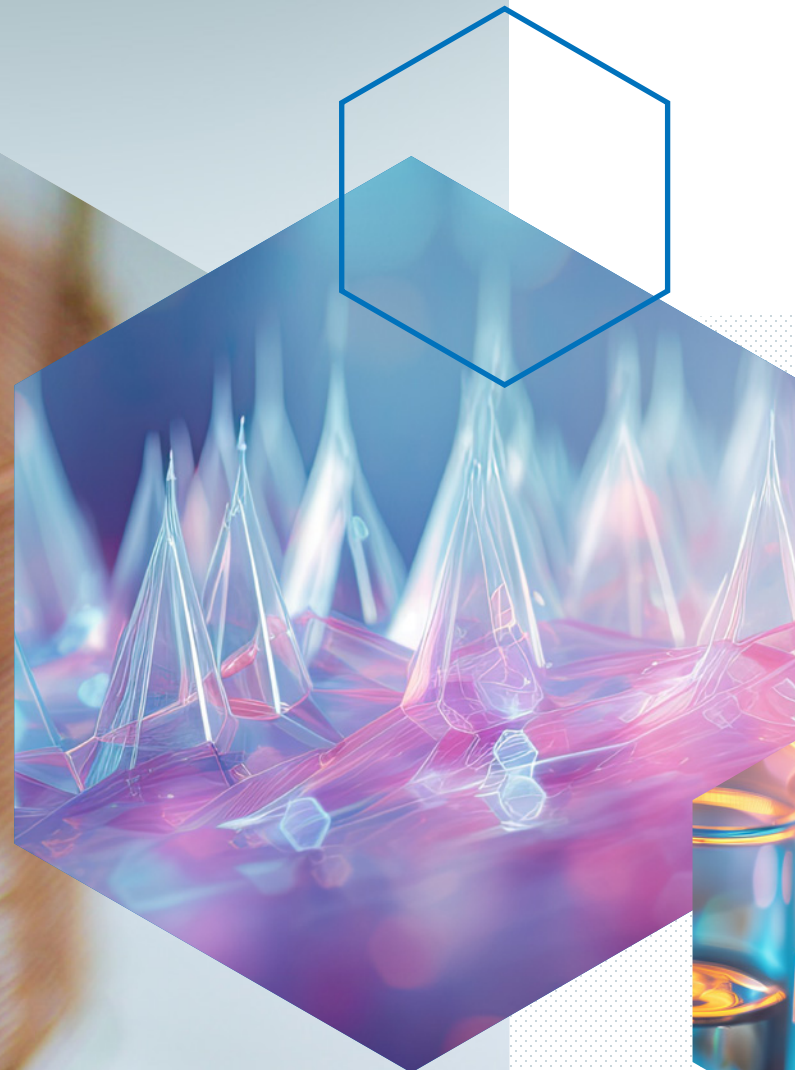
PepSep Classics:
Versatile Solutions for Standard Proteomics Workflows

Achieve unparalleled reliability and efficiency in all proteomics applications with PepSep Classics Columns. Experience enhanced throughput for rapid analyses, robust durability for consistent long-term performance, and exceptional flexibility for a wide range of separation tasks. With a cost-effective design featuring separated emitters, PepSep Classics Columns deliver unmatched value and versatility to empower your laboratory workflows.

Key Features

- **Robust Durability:** Engineered for consistent performance over extended use.
- **Accelerated Throughput:** Optimized for rapid analyses to increase laboratory efficiency.
- **Exceptional Flexibility:** Accommodates a wide range of separation tasks with ease.
- **Cost-Effective Solution:** Attractive pricing and longer lifespan with separated emitters.

» Danielle Swaney, Ph.D.

Assistant Professor, Cellular Molecular Pharmacology, University of California, San Francisco, USA

"These columns really hit a sweet spot of top-notch chromatography but with minimal back pressure. When compared to traditional nanospray columns, this allows us to use higher flow rates and minimize LC overhead time. This has been crucial for throughput, particularly when thousands of samples using shorter gradients."
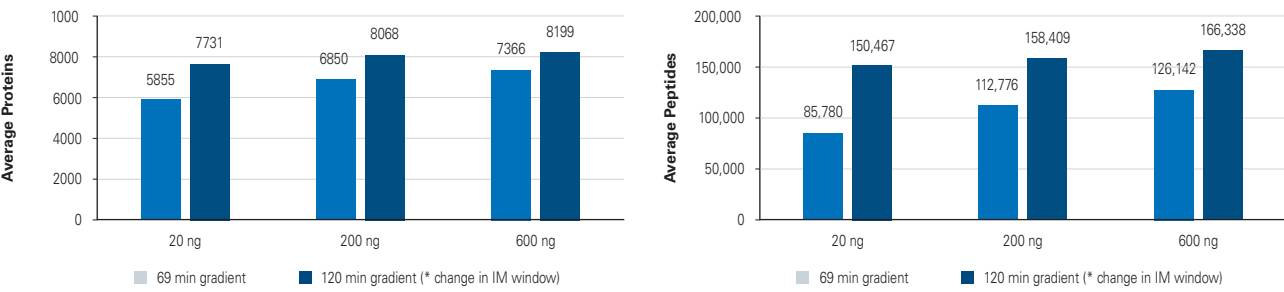
For your unique needs

PepSep
Classics — Various dimensions

- Part No.: various, see table
- Stationary Phase: C18
- Column type: reversed phase
- Pore size: 100 Å (1.5 μm) or 120 Å (1.9 μm)
- Surface area: 400 m²/g (1.5 μm) or 300 m²/g (1.9 μm)
- Temp. limits: 60°C
- Ultra-High-Pressure inlet (up to 1000 bar)
- Patented nanoConnect outlet
- Flow rate: various, see table
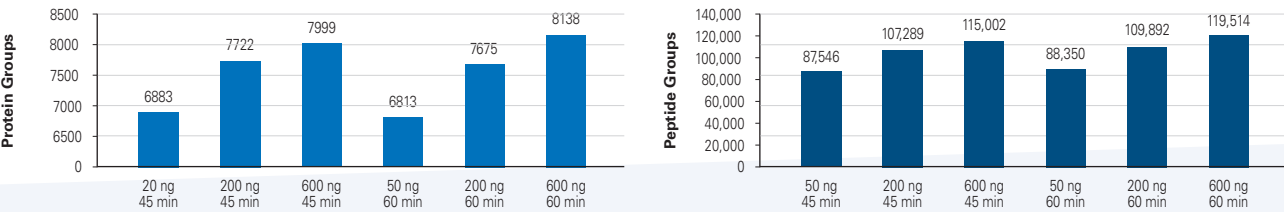- Applications: various, see table

	Application	Part No.	Description	Flow Rate [nL/min]
Sensitivity	Single Cell Proteomics Immunopeptidomics General Proteomics High Sensitivity	1895846	PepSep C18 50 cm x 75 μm x 1.5 μm	100 - 250
		1893484	PepSep C18 25 cm x 75 μm x 1.5 μm	100 - 400
		1893627	PepSep C18 25cm x 50 μm x 1.5 μm	50 - 200
		1893625	PepSep C18 15cm x 75 μm x 1.5 μm	150 - 750
		1893626	PepSep C18 15cm x 50 μm x 1.5 μm	50 - 300
		1895803	PepSep C18 10cm x 75 μm x 1.5 μm	150 - 1000
	Single Cell Proteomics Immunopeptidomics General Proteomics	1893477	PepSep C18 25cm x 75 μm x 1.9 μm	100 - 600
		1893473	PepSep C18 15cm x 75 μm x 1.9 μm	200 - 1000
		1893472	PepSep C18 10cm x 75 μm x 1.9 μm	150 - 1500
Optimization	General Proteomics Plasma Proteomics Mixed Samples Gradient Versatility	1893476	PepSep C18 25 cm x 150 μm x 1.5 μm	500 - 1500
		1895838	PepSep C18 40cm x 150 μm x 1.5 μm	500 - 1000
		1893479	PepSep C18 25cm x 150 μm x 1.9 μm	500 - 2000
		1893471	PepSep C18 15cm x 150 μm x 1.9 μm	500 - 2000
		1893474	PepSep C18 15cm x 150 μm x 1.5 μm	500 - 1500
Throughput	General Proteomics Plasma Proteomics Mixed Samples Gradient Versatility High-Throughput	1893483	PepSep C18 10 cm x 150 μm x 1.5 μm	500-5000
		1893470	PepSep C18 8cm x 150 μm x 1.5 μm	500 - 5000
		1895619	PepSep C18 4cm x 150 μm x 1.9 μm	500 - 5000

PepSep
C18 50 cm x 75 µm x 1.5 µm

Average Proteins

	20 ng	200 ng	600 ng
69 min gradient	5855	6850	7366
120 min gradient (* change in IM window)	7731	8068	8199

Average Peptides

	20 ng	200 ng	600 ng
69 min gradient	85,780	112,776	126,142
120 min gradient (* change in IM window)	150,467	158,409	166,338

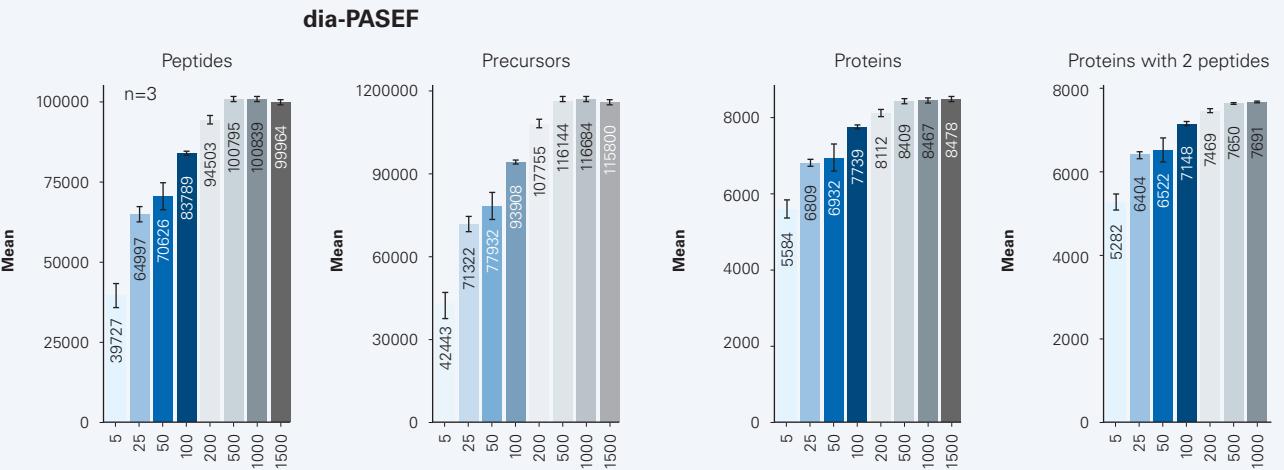- 69 min gradient
- 120 min gradient (* change in IM window)

Analysis of various concentrations of K562 tryptic peptides separated on the PepSep Classic C18 50 cm x 75 µm x 1.5 µm column attached to the timsTOF HT coupled to the nanoElute® 2. A standard DDA PASEF method, 1/k0 start 0.70, 1/k0 end 1.3 was used. Results were searched using Bruker ProteoScape™ search engine.

PepSep
C18 25 cm x 150 µm x 1.5 µm

Protein Groups

20 ng 45 min	200 ng 45 min	600 ng 45 min	50 ng 60 min	200 ng 60 min	600 ng 60 min
6883	7722	7999	6813	7675	8138

Peptide Groups

50 ng 45 min	200 ng 45 min	600 ng 45 min	50 ng 60 min	200 ng 60 min	600 ng 60 min
87,546	107,289	115,002	88,350	109,892	119,514

Quantitative analysis of different concentrations of K562 tryptic peptides on the PepSep Classics C18 25 cm x 150 µm x 1.5 µm on 45- and 60-minute gradients: Coupled with nanoElute and timsTOF HT Instruments, employing a 6x3 dia-PASEF window scheme for enhanced performance. Realtime data search conducted using Bruker ProteoScape.

PepSep
C18 10 cm x 150 µm x 1.5 µm

dia-PASEF

Peptides (n=3)

5	25	50	100	200	500	1000	1500
39727	64997	70626	83789	94503	100795	100839	99964

Precursors

5	25	50	100	200	500	1000	1500
42443	71322	77932	93908	107755	116144	116684	115800

Proteins

5	25	50	100	200	500	1000	1500
5584	6809	6932	7739	8112	8409	8467	8478

Proteins with 2 peptides

| 5	25	50	100	200	500	1000
5282	6404	6522	7148	7469	7650	7691

Quantitative analysis of K562 (with ddm) concentrations using PepSep Classic C18 10 cm x 150 µm x 1.5 µm coupled to nanoElute 2 and timsTOF HT: Employing a 45-minute gradient and 6x3 dia-PASEF window scheme for enhanced characterization, with results analyzed via Bruker ProteoScape.

When performance meets simplicity

PepSep
CaptiveSpray 2 Emitters

Ready to use fused silica emitter. Simple plug and play design. Spend less time worrying about tip setup with a static tip ready to use out of the box.

Union
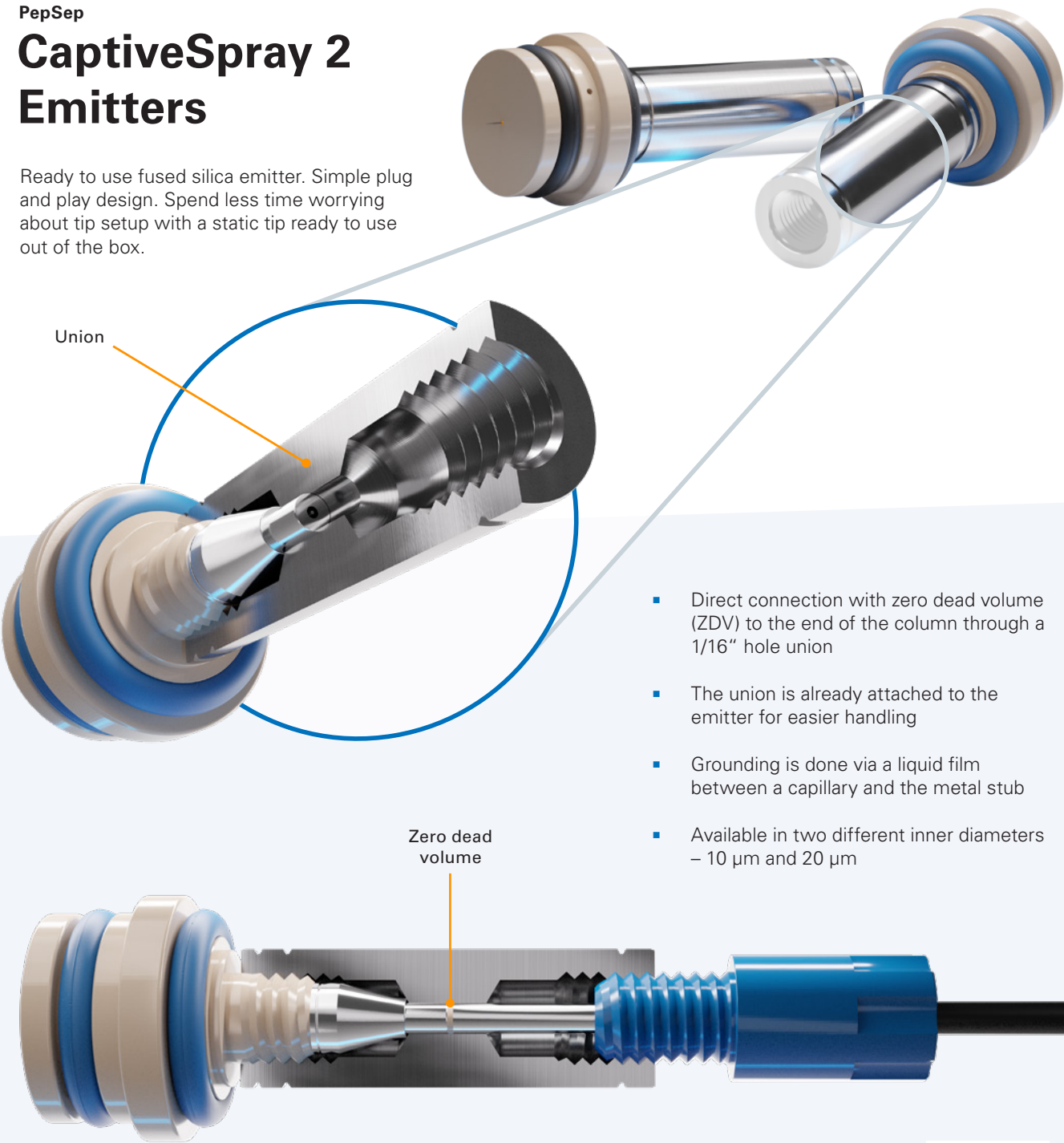
Zero dead volume

- Direct connection with zero dead volume (ZDV) to the end of the column through a 1/16" hole union
- The union is already attached to the emitter for easier handling
- Grounding is done via a liquid film between a capillary and the metal stub
- Available in two different inner diameters – 10 µm and 20 µm

CaptiveSpray 2 Emitter
Order and product info: